The COEVOLUTION Quarterly

WINTER SOLSTICE

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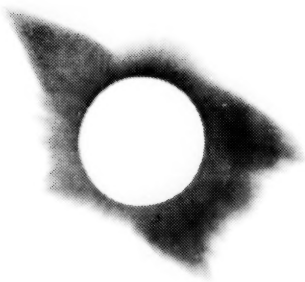

"Behind the Sun is the Real Sun."

–Blood Indian woman
Cutbank, Montana, 1964

COVER ARTIST *Noor (Stephen Durkee). This 6'4", 36 year, red-headed original is an old crony of mine (since 1960). In the early sixties he was a precocious New York artist riding the pop-op high ground. He co-founded with Gerd Stern the artist-engineer group USCO, centered at Stony Point, that aimed much of the early psychedelic art-performance medium. In the Bay Area in 1965 he invented the Human Be-In, which his partner Richard Alpert then fostered in Golden Gate Park. In 1966-67 he founded, with wife Barbara and Jonathan Altman, the Lama Foundation eclectic religious commune near Taos, New Mexico and designed most of its remarkable buildings. When Alpert returned to Lama from India as Baba Ram Dass, Steve organized, designed, co-illustrated the book* **Be Here Now** *(Crown, $3.33) that became a word-of-mouth bestseller. Since then Noor (Steve's Sufi name) has done two books with Pir Vilayat Kahn–– Seed and* **Toward the One** *(Crown, $6.39; and Harper-Row, $5.00).* **Toward the One** *has his best graphic work since he was a full-time painter ten years ago. This Fall Noor went to Jerusalem to work on a grass-roots Arab-Israeli peace.*

–SB

TIME FLIES LIKE AN ARROW .. FRUIT FLIES LIKE BANANAS..
O'NEILL

Apocalypse Juggernaut, hello.

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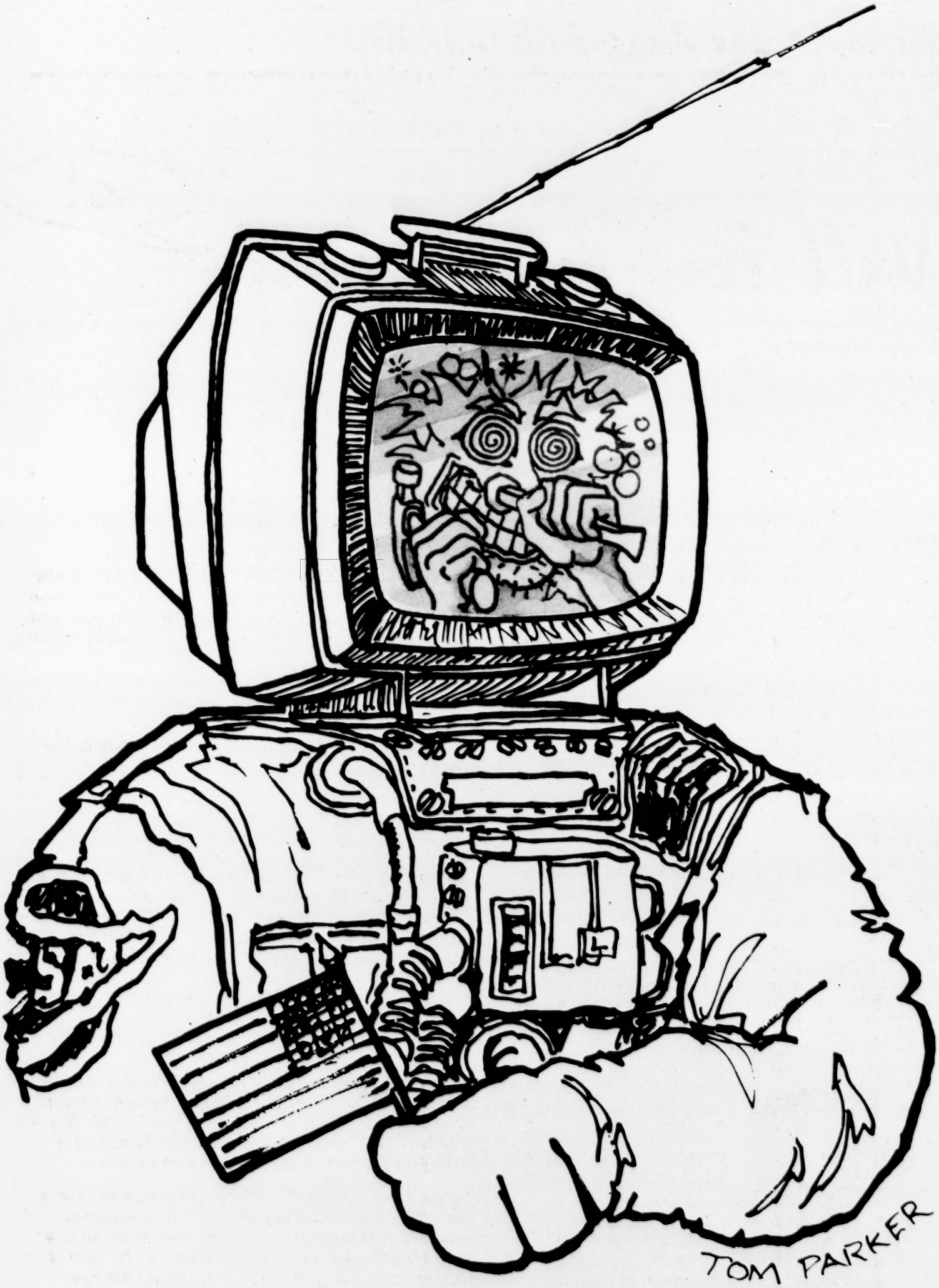

TOM PARKER

Apocalypse Juggernaut, hello.

Well-Founded Rumors

The economy

Is too much with us. It now dominates personal non-planning. "Economic collapse" is nearly everybody's private expectation. "ECONOMIC COLLAPSE!!", and the mind goes "gagh" ("what does that mean?") and shuts down. We grip our old routines ever tighter.

The economy is too much with the whole world, assert two substantial critics in this issue. Lewis Mumford analyses the lack of rural margin in the present crisis. Economist Dale Jorgenson spells out the evils of "economic integration"—— the financial policy mistakes of various nations no longer offset each other, they come in waves and resonate, amplifying each other.

Other hot news from the Jorgenson interview (starts next page):

1. College education is no longer a good financial investment.

2. Doing for yourself (gardening, building, repairing, whatever) has major advantages: a) you get the result at uninflated cost—— your time—— and less affected by shortages; b) no one taxes you (taxes will be rising); c) invisibly the overall economy benefits—— lower real employment, higher real GNP; d) and that counters inflation—— one of the few actual balancing corrections in the economy.

3. Gradually through '75 should be a good time to buy into the stock market as it bottoms and the Arabs start saving it.

4. Inflation may level off a little in '75 (to 10% or so) and then increase again. Recession will become severe. Expect 8% unemployment this year.

In a world where supply is critical, the stablest survival line is to have reserves. "The survival of the fattest, not the fittest," said Sir Frederick Catherwood observing business failures in England. "It is not a question of efficiency but of liquidity."

Who survives a forest fire? Redwoods and weeds.

Other notes

- *The noisy failures of the World Population Conference in Bucharest and the World Food Conference in Rome indicate the chasm growing between Have and Have-not nations. Next casualty: The United Nations.*

- *The bad U.S. harvest in '74 will drive food prices up another 20% in '75.*

- *Phosphate (for fertilizer) is even more critical than oil in world food production. If the Arab states (principally Morocco) put together a phosphate cartel like OPEC, they could control 70% of the market. So says Michael Allaby in the Nov 7, 1974* New Scientist.

- *"The cities are the place to be when everything falls apart", said Michael Phillips a year ago. He had studied the fate of city-dwellers in the Russian Revolution (1914-17) and found that they fared better then farmers and village-dwellers every time.*

Bernard Weinraub in the New York Times *this October: "Officials and relief workers are now saying privately that a tacit decision has been made to deal with India's food crisis. In blunt terms, the tactic is to feed the tense cities at the expense of the rural districts."*

—SB 13 Dec 74

"The whole system is out of whack."

DALE JORGENSON ON THE PHONE

Introduction by Michael Phillips

The economist I'm most willing to listen to is Dale Jorgenson. As an individual I knew him when he was an assistant professor at Berkeley. He had a steel-trapdoor mind for new information which operated at computer processing speeds. My most difficult-probing questions he answered in seconds with a full blackboard of simultaneous equations. He was terse, precise and blunt. His reputation as 'the genius' was already the coffee shop discussion among leaders in economics in 1961.

As an economist he has nothing to do with polemics and 'isms', he is a mathematician operating with a ferocious clarity. Marx's theories become a variation in the labor supply function, Galbraith's announcements become a different variable in the consumption and money supply equation; 'ownership of capital' becomes a matter of two or three variables in a 40-equation mathematic model.

Jorgenson is a 1st rate scientist who looks for experiments and 'proofs' that invalidate his models and falsify his predictions. In the following interview he accepts the world economic conditions and policy failures as powerful evidence that shake the roots of economic theory. He accepts that as a whole new challenge.

And he is not just being open as a curious bystander. Dale Jorgenson at 42 is one of the most pre-eminent economists among professionals throughout the world. A full professor at Harvard, winner of Guggenheim and Ford Foundation fellowships; editor and assistant editor of all the major professional journals and a major contributor to nearly every econometric computer model of the US economy. My guess is that more than 30% of the equations used in models to simulate the economy are his. His 80 publications are the core building blocks of econometrics.

Our access to him and his willingness to talk with Stewart are extraordinary. It reminds me of the relation Keynes had with George Bernard Shaw, a sort of joyous leak in a giant dam. Here we have access to the thinking of the man that Ford Foundation pays for consulting, the Senate Finance Committee asks to testify, and who feels most comfortable with mathematicians and computer print-outs. Usually bankers in Switzerland, today he talks to bare foot farmers.

The following conversation took place on November 11, 1974. Jorgenson spent several hours with the transcript editing out repetitions, toning down the personal remarks and sharpening the impersonal ones.

Stewart Brand: What we're trying to do with the CoEvolution Quarterly *is try to stay ahead of events on kind of a short term, within-the-year, basis, and so last summer we ran quite a lot of information on the world food situation, and this time I'm trying to catch up and get some basic understanding of what's going on economically in the country and in the world. One thing, am I correct in gathering that what goes on in the world and what goes on in the country are more interlocked than they used to be?*

Dale Jorgenson: Yes, that's certainly true. In fact that's now becoming the standard diagnosis of our current malaise. Previously when one country would go into a boom or depression then other countries, at least some of them, would be going in the opposite direction; now the world is moving up and down in coordination. The fact that everybody moved into a boom in '72 or '73 created a lot of the inflationary pressure that we've seen in world commodity markets. The pressure that resulted on international commodity markets has now dissipated except for oil.

SB: Is that a positive feedback situation, that the more there is a depression, the more there is a depression?

DJ: No; it would mean that the momentum of domestic business cycle development that would force a government to change its policies will be underestimated. In other words, people will be constantly surprised by events and governments will always be late in changing policy. Right now we're in a situation where the administration in Washington is completely mystified, having changed monetary policy too late, they're still on the course of trying to keep fiscal policy too tight. The domestic situation therefore is going to be much worse than they think it is. This kind of development has aggravated the normal problems on maintaining economic stability. What's sad is that this is happening to everybody. I mean, we're not the only people who are being surprised. Everybody else is also being surprised, so that stabilization policies are out of kilter. These policies can't contribute as much to rectifying the situation as they could if events in individual countries were a little bit better isolated from each other.

SB: What places seem to be most in kilter, if any?

DJ: Well, the Canadians, surprisingly enough, are pretty well in kilter. The Germans are not too badly off; they have succeeded in pushing exports fairly effectively by adjusting their currency, so they're really in fairly good shape. But except for Germany and Canada, I would say that most other countries are pretty badly out of kilter. The United States is at the end of the list; the people who are badly off are the British and the Italians. The French and the Japanese are at the same stage we are; they're not as badly off as the Italians or the British, but they're not as well off as the Germans or the Canadians.

SB: Is there much in common between what the various countries are doing wrong?

DJ: Well, what they're doing wrong now is to some extent a legacy of the past. They all adopted extremely restrictive policies in 1974, hoping to cut off the boom and kill inflation; the inflation itself resulted from simultaneous adoption of expansionary policies in '72 and '73. Now they are to the point where they all have to consider policy reversal. Only the Canadians and the Germans are on top of the situation.

SB: If everyone reverses at the same time, is that also a problem?

DJ: Yes; simultaneous reversal could lead to another boom of the sort that we had in '72 and '73, resulting in inflation-

ary pressures. All of this is one kind of cross-cut, right? The other cross-cut is what is going on in the petroleum market, which is a world of its own, creating severe disturbances in the world economy at the present time. But even in the absence of cartelization of the world petroleum market, there would be problems with stabilization because of the increase in international integration. *["Cartel": an international syndicate to regulate output and prices. (Also: a written challenge to a duel.)]*

SB: Are we getting a responsive [answering, or imitative] cartelization in other parts of the world economy?

DJ: No, there has been a lot of talk about cartelization elsewhere, but so far none of these efforts have been successful. You can see that especially in metal prices, where zinc, copper, and aluminum prices have recently been depressed. The world bauxite market is presently the closest to cartelization, but the cartel is unlikely to be effective with Guinea about to come into that market with sufficient capacity to supply the world demand at current prices. Of course, nickel is already a cartel. The prices we pay for nickel are prices that are set by the International Nickel Company in collaboration with the Le Nickel, the French nickel company. I think, in the absence of everything besides this Middle East War situation, it would have been hard for the OPEC countries to organize a petroleum cartel; because of their great success in that situation and the political payoff that it had, they were able to bring it off, but that was a rather unusual situation.

SB: Is that likely to remain the same for oil, do you think?

DJ: Well, as far as oil is concerned, they overdid it. OPEC is now charging more than the world monopoly price. Suppose you had a world monopoly in oil; you would set the price at $7 a barrel. Right now in the Persian Gulf the price is 50% above that. Producers are having to cut back supplies. They have made a 10% cut in output and they are having to cut back more and more all the time. Oil is coming out of everybody's shoes, almost . . . a tremendous glut which is shaping up. Most of the producers are in a position to go along with a ten per cent cutback. If a cutback of fifty per cent were required to maintain prices, they would begin to balk; that would exert downward pressure on the price and the people at OPEC are beginning to realize this. But of course they haven't done the precise calculations that I indicated, so they are not aware of how far they will have to restrict supply. They will have to lower the export tax for the Persian Gulf countries, which sets the world petroleum price structure, and my view is that this has to come before Christmas.

SB: What period of time for continuing collapse do you draw now?

DJ: Well, I continue to see problems well into '75. Many people who are optimistic are looking for an upturn at the end of this year. I just don't see that and I think it may be the end of '75 before we see a reversal. There are a lot of negative factors. The most important is that in the aggregate statistics the collapse of the automobile market hasn't yet been felt. Then after that there will be the collapse of business investment. Recovery could carry us well into early '76.

SB: How well might the market go in a circumstance like that?

DJ: The stock market? Well, the stock market is influenced by the economy, but it is also influenced by the financial situation, and especially by interest rates. Right now interest rates are on the way down, and they could go down very, very rapidly. There was tremendous movement last week in the long term market; the two preceding weeks there had been a substantial reduction in short term interest rates. If the Arabs begin to move substantial funds into the United States, they will probably begin to buy treasury bills, very short term paper. Then they'll move into the long term market where they can get very attractive interest rates. Finally, they'll move into the stock market. With lower interest rates, and substantial foreign buying power, you've got to be an optimist about the stock market. My feeling is that the stock market will, with a few gasps, finally start moving. I visualize that as taking place sometime in the Spring. I hesitate to set a precise time because the timing of movement of money from Europe into the United States will play a very important role in determining the course of interest rates and determining the buying power that will be going into the stock

Dale Jorgenson in Business Week

Gwendolyn Stewart

Jorgenson: The tax credit boosted capital spending 10.2% in its first five years.

market. But, if I were advising someone about investing in the stock market, I'd attempt to get them to commit themselves progressively over the next two to three months.

SB: If a lot of Arab money comes in, investment, loans, T-bills [Treasury bills], and so on, don't we continue to hemorrhage through the debt-servicing-- interest and such?

DJ: What we're doing is selling our resources. In effect, we will be letting foreigners acquire substantial parts of General Motors, General Electric and all those other generals that have been creating property income for Americans. That income is now going to go to foreigners.

SB: What effect will that have?

DJ: Well, in the long run, that tends to lower our national income, relative to what it would be if we all did the saving ourselves. It would be a little bit like foreign aid in reverse. We've been loaning lots of money to developing countries at low rates of interest; we have been essentially doing their savings for them through our government. Their savings has been less than it otherwise would have been; their capital accumulation has been more, but their national income lower than it would be if they undertook the savings themselves. We will gradually be retracting. It'll start out by people buying pieces of us, and then gradually buying out our foreign investments. This is exactly what happened to the British after World War II. They began selling out their country to us and began drawing their own investments back from abroad; now, of course, they're big debtors.

SB: Are we likely to find ourselves in the situation England is in now?

DJ: Well, relatively speaking, yes. Of course we'll have four times the income per capita, but as far as a relative decline in our role in the world economy . . . that's exactly what the scenario leads to in the long run.

SB: How long is that run?

DJ: Well, by the beginning of the next century, let's say.

SB: Is there any term yet for the situation where the world is much more one economy than it used to be?

DJ: Economic integration might be the generic term, I suppose, but I haven't seen any catch word that really describes the situation.

SB: Are we likely to get into a situation where labor union

action goes international . . . where you might get a coal strike in several widely-spaced and significant countries at the same time?

DJ: That could happen, beginning with a United States-Canadian coordination. We could have, say, an auto strike that would be for North America instead of just the United States or Canada. But I think the possibilities for international coordination are not that great at this time, but I'm not a specialist in that field, and I just have to plead ignorance. I don't know.

SB: Michael, you're awfully quiet.

Michael Phillips: Yes. I was going to ask about the issue of the oil cartel, and, first of all, has this changed any views on the role of, say, the single price in total equilibrium? Are there any historic parallels to cartelization that would give any clue to what that does to equilibrium or price equilibrium?

DJ: Well, no. I wouldn't say that there are. This is really a new situation at least in terms of scale; there are many cartels in the world right now, for example, the nickel cartel I mentioned earlier. There are a lot of markets in Europe that are pretty well cartelized. The market for consumer durables would be a good example. The Philips Company controls that market; if you want to buy a refrigerator or laundromat in Europe, you will find that you have to pay much more than for the equivalent commodity here. They have a very effective restriction of entry through their control of the distribution system. In this case, the cartels affect mainly the European market.

As a result of the petroleum cartel the world is going to become much less efficient in using energy; that will drag down the world GNP. On a long term basis we're going to be growing at the same rate after the initial disruption, but at a lower level. The major effect will be a decline in efficiency. I've estimated that by the year 2000, the United States GNP will be 10% lower than it otherwise would be.

MP: What I was also trying to add is if, say $7 a barrel is the monopoly price based on the 1974 dollar, do all other prices have an equal rate, at least over a four or five year period, to the oil price?

DJ: We know that other fuels have to be brought into line, so we find that there is a tremendous boom in coal, but people are not willing to expand. They anticipate that the price of coal, like the price of oil, will eventually go down, so they will hold back on supply. Up goes the price. And the same thing has to be true of natural gas. In this country that's a story that is complicated by regulation, but the price of natural gas has to go up, the price of refined products has to go up, and the price of electricity has to go up. These energy price increases distort the economy; they don't coincide with what people expected when they made their plans about how much energy they were going to use and how much capital investment to make, given that energy use. So they find that energy is much more expensive than they anticipated, that everything is a little bit out of kilter. The unemployment rate suddenly shoots up as people begin to cut investment. It only takes the collapse of a sector of the economy, like the automobiles, to make the unemployment rate increase substantially. What is the response of the politicians? The political pressure is going to be irresistible to pump up the economy, and so thereby cause more inflation. There will be a tendency to pump the economy up; this depression that we're going to be in through '75 could be accompanied by inflation and followed by a new round of very substantial inflation. So it could be that the world petroleum cartel, by this sequence of events, does turn out to be a very powerful inflationary source. But it's not just the direct impact of the energy crisis, which has a relatively minor effect of dislocation on the economies of these various countries.

MP: One problem is, now that they're beginning to put prices on their energy figures, is that disequilibrium period will result in actual investments and negative net energy creations, and they haven't given an example, but some of the North Sea drilling may actually be net-energy-losing, where the total system energy required to obtain the oil is equal to or less than than what is in the oil they drill.

SB: Also, shale oil is a famous example of this.

DJ: Yeah, that's right. There's truth in that argument, but certainly not in the net energy concept. What is true is that people anticipating that current energy prices are going to persist are making investments like shale oil that will later turn out to be big mistakes. North Sea exploration might be in that category—— I just don't know the cost situation that well. It's only now that we begin to see that some of these things are beginning to turn sour. Compare the attitude toward shale between the federal auction of leases which got so much publicity and now. The only people who are really active in this thing are saying, we're not going ahead with this until further notice. The money that was put down for shale was probably a mistaken investment; at the time it looked pretty good.

MP: So what you're saying is that the price system in general does not result in negative net energy, but in disequilibrium?

DJ: When prices are out of kilter, there will be a lot of mistakes, not just in the energy sector.

SB: I'm curious about inflation. How does your twenty-five cent tour of the causes and likely future of inflation go these days?

DJ: Well, I think there will be some moderation in inflation, down to 10% during '75, which will make people optimistic that it is going to go away; after that I'm afraid there is going to be a tendency to inflate again; this could occur more or less simultaneously in all countries, generating tremendous inflationary pressure. Another thing that's important to notice is that once people build, say, a 10% rate of inflation into their calculations expansion doesn't start from zero again, it starts from 10%. So we're talking about a new increment. If there's an inflationary bias in fiscal policy for all countries, that means the next move will be from 10 to 20%. You've got to believe that there's going to be more inflation. I just can't see how there's going to be less.

SB: Until when?

DJ: Indefinitely. In other words, the only thing I think that could really dampen inflationary expectations at this point would be a very severe recession. We're in a situation where we're going into what people think of as a recession. It's going to turn out to be much more severe than people anticipated. So that is good for inflation but bad for the people who are out of work. It's bad for the economy.

SB: What kind of unemployment might we get into in a situation like that?

DJ: Well, I wouldn't be surprised if we saw 8% unemployment next year.

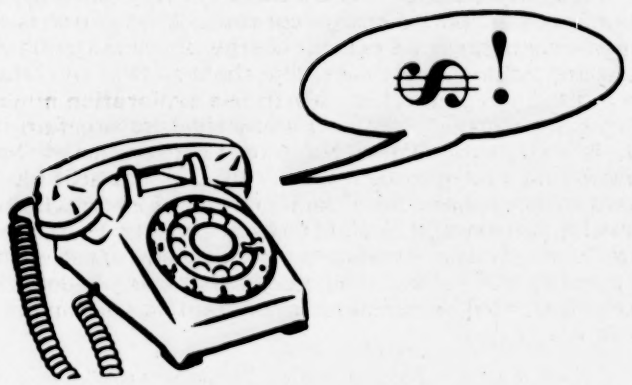
SB: One favorite topic of Michael's, and I've been hearing it more and more, is sort of a fond regard for the multi-national, trans-national corporations as a balancing factor in a world that was national formerly. Do you have any interest or regard for that?

DJ: I don't know about that. Maybe you could tell me a little bit more.

MP: The view is that we don't really have any trans-national corporations, except possibly COMSAT because almost all capital that is now raised is raised domestically, per company, simply within the law. But with COMSAT with an example, a couple of the markets, Japanese and German, and American markets becoming very similar in their structure, it may be possible for actual ownership of corporations to become more multi-national, and consequently they may act to go around national interests . . .

SB: And have the clout to do so, I gather?

MP: Well, Shell and Texaco continued to provide Belgium and Israel with oil during the Oil Embargo because it validated their international interests, or didn't validate the national interests of the governments by which they appear to be controlled, and that more trans-national corporations will create an infra-structure for the world economy which may evolve in the next ten years. Especially, the President of Dow a few years ago said, "You show me a country that will let me make any profit I wanted, and I'd move there! I don't have any more loyalty to America than I have to Mao."



DJ: Well, I think there is truth to that story; the spread of multi-national corporations will facilitate the process of international integration that we've described. My feeling is that the problems for stabilization in such an internationally integrated economy are really quite severe. But the other arguments related to economic integration and its benefits would have to do with increased efficiency through the international division of labor. The multi-national corporations will be creating the infra-structure for a world economy that will really make resource use more efficient. I think the basic thrust so far of economic integration so far has been decreased cartelization. Imports of automobiles from Japan and Europe, especially the growth of complete systems of distributorships for Volkswagen and Datsun, for example, has made the American automobile market much more competitive, and has made the choices of American car buyers much more attractive. So I'm left with the conclusion that the only negative aspects are the serious problems which have been created for stabilization policy.

MP: *Stewart, you ought to have some questions about human beings.*

SB: *Human beings. I've got another which I'd rather ask first. While you're hearing our questions, what questions are you asking yourself mostly these days about the economy and your business?*

DJ: Well, mainly specific questions about the energy situation, which I follow rather closely. One other sort of question that I'm asking myself is rather abstract, the design of ideal tax systems, and how to make the American economy more efficient through re-design of the tax system.

SB: *What is the optimum individual strategy these days?*

DJ: My view of the optimal individual strategy is predicated on the idea that inflation is going to continue, and that individuals have to be in a position to protect themselves against inflation. That means a lot more calculation on all the economic decisions that people make; in a situation with inflation, relative prices are going to be shifting a lot, as people try to counteract the effects of unemployment, deal with the energy crisis, and so on. The whole system, as we indicated earlier, is out of whack. And that means that people just have to spend more time calculating, worrying about the best buy. Now as far as protection against inflation is concerned, the same thing has to be true with regard to the investments that people make. The most important investment for most people is their investment in their own labor supply and capability, whether it takes the form of some sort of formal education or job experience. It seems to me that those investments have to be looked at much more critically; people have to think a lot harder about how to make them properly because we're experiencing a big change there in the return of various kinds of investments. As you know, there's been practically a collapse in the market for college education, equal to or greater than the collapse that has occurred in the stock market. Rates of return on college education have dropped from large, positive numbers like 10% (which is what the stock market used to earn in the good old days) to numbers like 0%. College graduates are not all that much better off than people who started working right after high school, ending up with slightly less income than the college graduate after graduation. That's the sort of thing young people have to worry about and parents have to worry about for their children. My feeling is that these are concerns that we don't have good answers to, that might deserve some looking in to; especially for your readers. These are much bigger questions than looking at the food budget or going around turning off lights.

SB: *What are good personal investments? You say college education is not such a good investment any more, what is a good one? What kind of job experience pays off now? What kind of education pays off?*

DJ: Speaking of specific investments, I would say that the best buy currently is education and job experience that are health related. There is a booming market, and not much expansion in supply. In other words, at the high end, medical education, at the immediate end, say, nursing and pharmacy, and the low end, employments that are health-related, like medical technicians. That range of investments still has a fairly high rate of return.

MP: *The classic ones were gold and land.*

DJ: Well, you're thinking now in terms of property as opposed to education. Getting back to property, I would say in the current situation, probably the best buy is the stock market. It's about as good a time to buy stocks as in the last recession of this severity, say in 1958. If you bought in 1958, you'd look good now even though there's been a major decline in stock prices since 1966. So I would say that the stock market is a great place to push your buck right now. Agriculture turns out to be a very good investment, if you can do it on the right scale.

SB: *What's the right scale?*

DJ: The right scale turns out to be very large. In the main agricultural areas of this country, say the Central Valley in California, Iowa, the Mississippi Delta, and so on, I think the minimum size of an efficient unit is well over $100,000. It's very hard for an individual to get into that type of thing. But there are a lot of opportunities related to agriculture which suggest that a few more people ought to stay down on the farm. And I think that's a trend which you'll see in the population statistics. As it is, the number of people moving out of agriculture through retirement alone is very large.

SB: *Yes, I've heard that it's even dangerous.*

DJ: Yes, we now have an expanding international market and government control has been pretty largely eliminated on the agricultural production. There will continue to be a tremendous market for food and fiber. Agriculture looks like a very good investment, but that's not the advice that's easy for the individual to take unless the individual has some sort of family connections. It's kind of like being a plumber in New York City. Unless your Daddy was a plumber, it's fairly hard to get into the union. And I think the same thing is true of becoming a farm operator. You pretty much have to be in a situation where you can move into an existing situation.

SB: *How come we're hearing such loud complaints from the farmers currently?*

DJ: First of all, farmers have been taught that it pays to complain and it does; complaints get results from Washington. There are also some serious problems. Prices are out of kilter there. Right now, prices are high for basic grains and crops are not good. This means lots of people raising meat are being squeezed, including dairy farmers. All these people have experienced increases in their costs. If you look at the agricultural sector as a whole, the returns still look fantastic.

SB: *One of the things we've been suggesting, inadvertantly almost, is when the economy is out of its mind, to participate in it at a minimum. Just because of the kind of thing we promote, people we talk to are doing more of their own gardening, more of their own building, conserving energy not to conserve energy, but just because they're living out of connection.*

DJ: That's very good advice. One of the most important things about that is that the product you produce is your own, and furthermore, the IRS doesn't have a claim on it as they would if you take the time you spend puttering around the house, and, say, spend it puttering around a construction site.

SB: I never noticed that.

DJ: That's a very important factor that's becoming more important because the tax bite is increasing as the inflation proceeds.

MP: You mean the progressiveness of the tax will become very severe?

DJ: Right. Somebody estimated that some large fraction of the construction industry consists of people adding on a room to their own house, putting in a bathroom, etc. Take the automobile repair industry. You have a bunch of mechanics fixing cars for money and paying income tax. You also have a bunch of kids, working on cars. If you take that—— the efforts of the kids—— as a fraction of automobile repairs, it's a large number. None of their work results in taxable income. Self-produced consumption, whether it's gardening or carpentering or car repairing, is a large number from the economic point of view.

SB: What happens if that number increases. Does anybody know?

DJ: One thing is that the GNP increases, and we don't observe it. In other words, we're better off, but we don't know it. We can't see it in figures. We get a somewhat distorted view of what's going on. What happens is that we find that there's less labor available for work, the unemployment figures look worse than they really are because more people are spending time putting down a new floor or painting their houses.

SB: I'll be damned.

DJ: That's good. That means that the jobs they would have been filling are available for some teenager after school.

SB: What effect does more and more of that going on have on inflation? Does that bear any relationship to it at all?

DJ: In a very indirect way. With more people doing their own thing there are fewer of them to work. That creates less pressure for the government to pump up the economy. So that means less inflationary pressure. It also means that real growth looks worse than it is. It's probably good for the economy.

MP: But it's such at an extremely small level.

SB: That's an actual, genuine negative feedback cycle in there, because the more inflation there is, the more people are going to do things for themselves.

DJ: I don't know how small it is. I think one could put some numbers together like that. We could put some numbers together for people working on their own houses. We could also do the same for home-produced food; the Department of Agriculture does some of that already. I think you would be surprised at how large those numbers would come out to be.

MP: We're talking about an incremental change that might have some impact.

DJ: That's right, exactly. It's also the case that with people getting less formal education, as college enrollments are going down, people are getting more skills on the job that they can use at home. Right now there is a tremendous surplus of construction people, and presumably they are doing what construction people do—— they are now taking advantage of the situation to do a lot of building that they wouldn't have otherwise done, on their own houses, on their relative's homes, in non-market transactions. So that is an offset against the really gloomy picture you get of what's going on in the housing industry—— a lot of housing construction is still going on but it doesn't show up in the construction contract work. You should be advising people to do that sort of thing.

MP: To disintermediate themselves.

SB: I've got a question about economists, who are just sort of famous buffoons these days, not because they are, but because that's the thing the media is saying. Who are economists you are finding more relevant, more predictive, and more useful to watch?

DJ: My number one pick is a dark horse. It's this guy who has written a tremendous flood of material named Roger Leroy Miller. Have you heard of him?

SB: No, I haven't.

DJ: He has written under the pseudonym Angus Black, but he's also written a whole bunch of popularly oriented stuff. He is getting a tremendous readership. He would be a natural columnist for you, I should think. His line is a liberal, non-aggressive version of Friedman. He is trying to debunk all sorts of sacred cows; his own view is liberal in the political sense and liberal in the economic sense. He's got kind of an unusual mix. I view him as an up-and-coming guy.

SB: Does he have any books out?

DJ: Yes, he has maybe twenty books out.

SB: What would be a prime one to look at?

DJ: Well, just to give you the flavor of the man, a book has just come out on the energy crisis; he's probably working on food right this minute. He had a book out in 1971 on Noxonomics, which was an attempt to analyze and deflate the President's program announced on August 15, 1971. He has a textbook out that I think you'll find very interesting reading called Economics Today.

SB: That's under his Miller name or Black name?

DJ: Miller. His first effort with Angus Black was something called A Radical Guide to Economic Reality; it was a very clever piece, because it was written in Anglo-Saxon and tried to convince radicals that they really ought to back Friedman. Although I view Friedman's views as very sound, he's a rather ineffective salesman. Miller, on the other hand, communicates much more effectively.

SB: Who else looks good?

DJ: In the energy area, the guy who makes the most sense has has so far circulated his material mainly within the professional community; his name is Paul MacAvoy at MIT. He has been working in energy for fifteen years, and he understands the problem better than almost anybody I know. He's the kind of guy who could end up as a member of the President's Council of Economic Advisors under the next Democratic Administration, or as the first Democrat appointed to being Director of the Federal Energy Administration. That's the level at which he operates. He is not the kind of guy who is going to be as much in the public eye as an economic commentator. Another new guy, a likely new face for the future, who would have some potential for this kind of role, is a guy named Bill Nordhaus who is a professor at Yale.

MP: Are there any international people who are building an international model? I know that some of the radical economists are trying to build a world input-output model.

DJ: Well, there are a lot of world models. You probably saw the second report of the Club of Rome; that is a world model of sorts. The world input-output model is being built by Leondief. Is he a radical economist?

MP: Surprisingly. It was the American radical economists who got together with him. They had a conference last summer in Vienna. He's the father. Most of the people who are doing the work are his disciples.

DJ: I suppose there's something to that. I'm familiar with his project; it's being done under UN auspices and it's a very interesting effort. There is also a project called the LINK project, headed up by Lawrence Klein of the University of Pennsylvania. Klein has a dozen or so econometric models linked together.

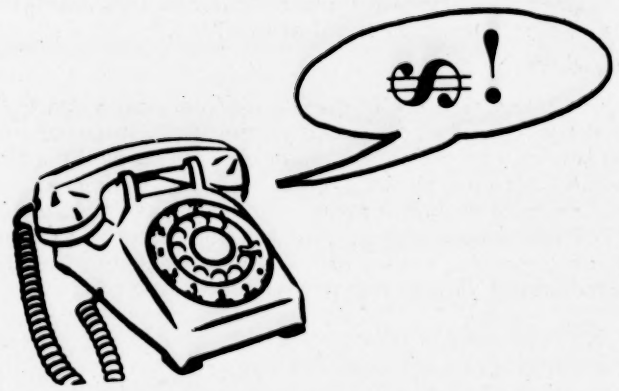
MP: Technically you need a world input-output model before you can develop a simultaneous equation model?

DJ: It would certainly help.

MP: So we may indeed need the input before we can get the simultaneous equation model?

DJ: It could be. But we certainly need a world input-output model. I think that's a very worthwhile project.

MP: Do you think there's enough data for a simultaneous equation model?



DJ: I think that with a substantial investment, you could put together the data. It would require a very substantial investment to do that, a half a million dollars or something. An input-output model would be somewhat less expensive.

MP: *Are the national model equations appropriate?*

DJ: If economics were a science, which it is not, and if we were performing experiments, which we're not, and we were going to read the conclusions, which we're not, then I think you'd have to say that whatever theory that went into those models was wrong. It just is contradicted by the events. Existing econometric models are completely off; they were all wrong on what was going to happen to the GNP in 1973; last year at this time they were all predicting an upturn right about now, and what we're experiencing is a further downturn. So you've just got to believe that they're wrong.

SB: *How far toward a science of economics can we really go?*

DJ: I regard that as an open question at this point. I don't think a scientific challenge is fully on the agenda, and it will be, but I think not any time soon. I view this as a situation which is really pregnant with implications for the development of economics, because I think that the existing framework has pretty well been broken down by events. It's a situation that's not quite as catastrophic as the Thirties, but it's something like that. Not that another Keynes is going to come along, but there is going to be a very substantial change in the way people think about economics. The radicals have been pushing this idea for some time, but I think that the situation wasn't really ripe; I doubt that they will succeed in promoting themselves as the people who take the whole thing over. But they're certainly going to try, and they have a much better situation than they did before the economy started to come unstuck.

SB: *They have a set of programs which is recognizable?*

DJ: They don't have a world view yet, but they have a program of developing a world view, which is supposed to be an alternative to their view of what the standard position would be, Keynesian economics. They're now trying very hard to elaborate that view in various directions. But, like everyone else, they're strapped by shortage of resources; there are only so many radical economists, they only have so much time, and they are doing their best, but aren't we all?

SB: *How is Keynes holding up as a theoretical base?*

DJ: This is something that depends on the generations. Ideas in Physics, and I'm sure in Economics, die out by having people die out, and I think that if you asked Paul Samuelson how Keynes was doing, his answer would be "Just Great . . . this is a great opportunity for Keynes' economics, it just shows you how good Keynes' economics is . . ." Milt Friedman, on the other hand, would say, "Here's a situation which demonstrates that Keynes was completely irrelevant to begin with, and this defeats Keynesian economics forever." My own view is a little bit closer to Friedman's; I think this shows the intellectual bankruptcy in not only the Keynesian approach, but in ideas that are related to it; we are in a situation where economics ought to lower its aspiration level and quit pretending that we have the answers. We shouldn't go around telling people that economics explains everything. It doesn't. It's really much more limited in its applicability than we were taught to believe as students. That's nothing against Keynes or anyone else; they did their best. The claims that have been made for the validity of their work are claims that we should start disbelieving. That doesn't drive me to dismiss Keynes or Economics, but it leads me to try and do what I can to deflate the wild claims that were made in the early sixties by people who were saying that the millenium was here, that everybody was now Keynesian, and that that was going to cure all of our problems.

SB: *I have a standard question, which has several directions. What have you read that electrified you lately, and this would be both in your field and in your life, and from technical papers and books.*

DJ: The most exciting book I've read recently is by Fogel & Engerman on slavery, Time on the Cross. Have you seen it? It's an unbelievably radical book. It advances the thesis that, in fact, under slavery the economy of the South was as efficient or more efficient than the Northern economy at the same time, and, furthermore, that the whole organizational structure of the slave economy was Black. In other words, it wasn't just the people out in the fields picking cotton, but the overseers, the organizers, the managers who were Black. The only people who weren't Black were the people who were managing portfolios; in other words, the people doing financial calculations. Fogel and Engerman view this as a great vindication of the Black race and its potential for economic accomplishment and achievement. Their work leaves a great void as to what happened as a result of the Civil War. Why is it that when we pick up the track in the late 30's or the early 40's the Blacks are then down at the bottom of the economic ladder? Their argument, essentially, is that we have to blame reconstruction and its aftermath, that we can't blame it on the slave society, and therefore we can't let contemporary American society off the hook for the condition of Blacks. We can no longer use the excuse, "that's because they were slaves." As slaves, Blacks were as productive economically as Whites at the same time.

SB: *Once again, intervention was the bad guy. In this case, the goodhearted Northerners.*

DJ: If you mean that the Northerners intervened to end slavery, Fogel and Engerman would certainly regard that as good; however, the problem that remains is, what happened during reconstruction. In any case the book is electrifying in its implications for American race relations. It is probably the most important book that's been written on the subject since American Dilemma.

SB: *What else? We also include technical papers and things like this as sources of electrification.*

DJ: I was mildly electrified by this book that just came out of the Energy Policy Project into which I had substantial input, called The Time to Choose. It's a book that was put together by Dave Freeman and his staff and it's an attempt to analyze the potential for energy conservation in this country. And the conclusion is that if you ever get over the short-term hurdle in dealing with disorganization which is involved, that the potential for energy conservation is really enormous.

SB: *What are the major cutback areas?*

DJ: The major cutback areas are in every area except transportation: industry, business and household sectors. When I say cutbacks, of course, I mean in rates of growth. We're not talking about a decrease in energy consumption; we're talking about a decrease in the rate of growth of energy consumption.

SB: *How would we get that book?*

DJ: You would write to Ballinger in Cambridge. Ballinger is a subsidiary of Lippincott, and they publish the whole Energy Policy Project report; this one is called, The Time to Choose.

SB: *Michael?*

MP: *I'm so happy just sitting here in the sunshine.*

SB: *Ah, the California laze.*

•

Apocalypse Juggernaut, hello.

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–SB

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John Warren
Washington, North Carolina

Storage Foods

Here's three more suppliers to add to the list on EPILOG p. 600.

Neo-Life, *565 E. Lewelling Blvd., San Lorenzo, CA 94580. Features vitamins and smaller containers. Info: $.25.*

Constitution Foods, *160 N. 200 W., Provo, UT 84601. Has a "year's supply" package for $365 (230 lbs.).*

Survival Food Co., *Box 115, Albany, IN 47320. Has a "year's supply" package for $525 (477 lbs.).*

Is anyone doing research on these supplies–– who's got the best food and the best deals? How about some Home Ec. department?

–SB

Nutri-Grind flour mill

A good-priced electric flour mill with hand or bicycle option. Four models: $165 with cabinet and drawer scoop; $130 with no drawer scoop; $125 for bare mill and motor; $60 for bare mill (you provide 1/4-1/3 h.p. motor–– such as old washing machine motor).

–SB

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The Coming Profit in Gold

Investment in gold is an investment in economic collapse (metal faith outlives paper faith) and in fear of economic collapse (price of gold rises as fear rises). Mike Phillips here at Whole Earth has calculated that if gold were just an industrial good it would cost about $130/oz. The market price this week is about $180. And expected to rise.

This book looks to be an excellent introduction for new gold buyers motivated by public events and the re-legalization of gold ownership in the U.S.

–SB

The Coming Profit in Gold
Charles Curley
1974; 154pp.
$1.95 postpaid
from:
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666 Fifth Avenue
New York, NY 10019
or Whole Earth

Remember that the U.S. has banned gold for forty years, and there is apt to be quite a bit of confusion until the people involved, both buyers and sellers, get used to what they are doing.

To avoid some of this confusion, you might consider making your first purchase from a Canadian or Swiss bank. If you have an account with a Swiss bank, inquire about their terms. Otherwise, I would buy from a Canadian bank, since it is closer, and so the transaction will take less time and shipping charges will be much less. I can suggest two Canadian banks to you, both of which I have done business with satisfactorily: the Guardian Trust Company (618 St. James St., Montreal H3C 1E3, P.Q.) and the Bank of Nova Scotia (International Banking Division, 44 King St. West, Toronto M5H 1E2, Ont.). They will quote prices on request.

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You will be able to store gold in a safe-deposit box, just like anything else. However, I think that you should avoid bank vaults. The possibility exists that, in the event of a hyperinflation or depression, the banks will be closed, and their vaults with them.

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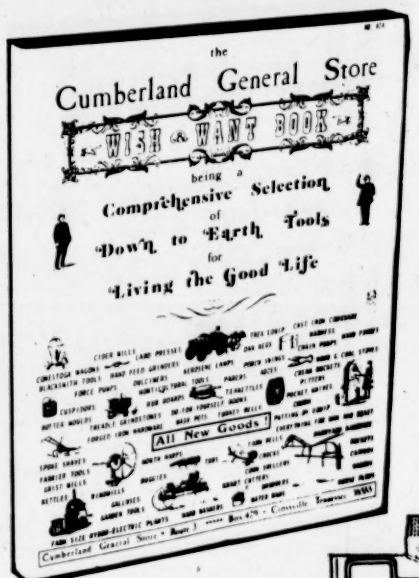

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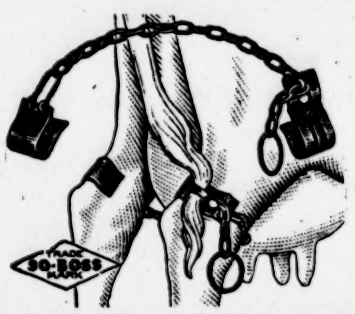

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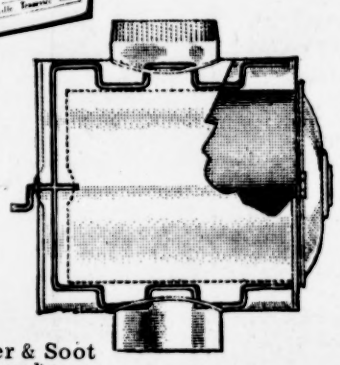

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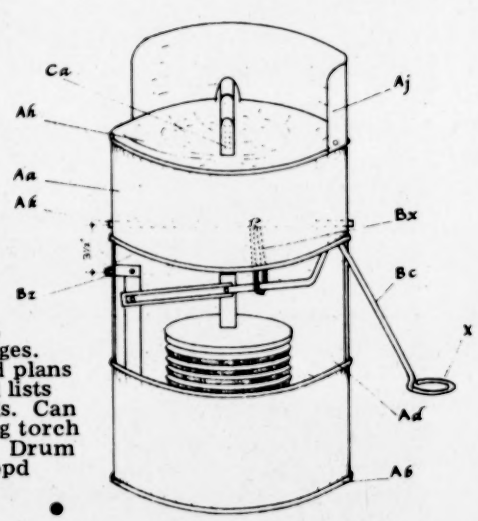

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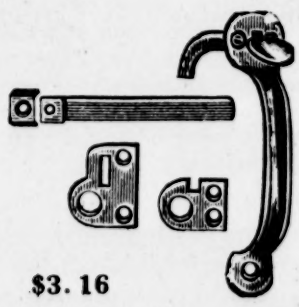

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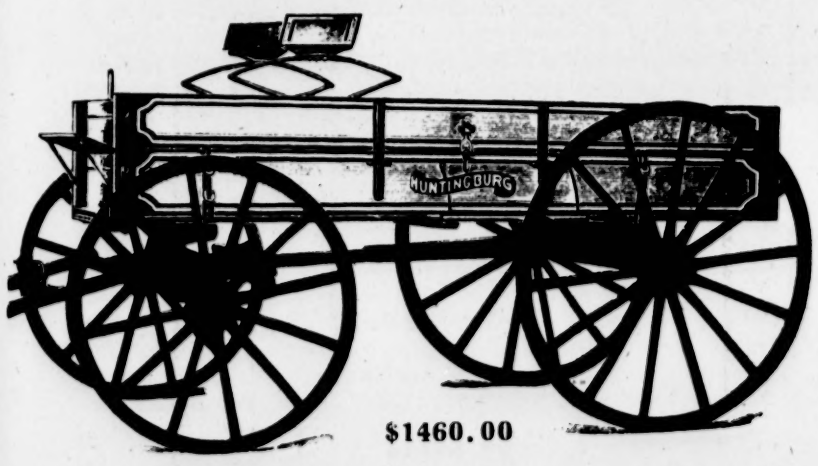

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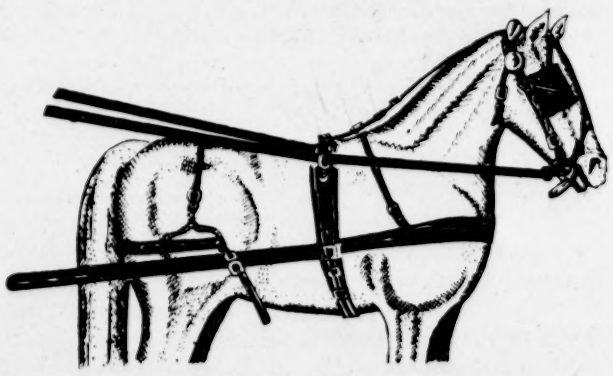

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Understanding Wholesome

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No better book exists for planning your personal course through the hard times that we're just feeling the beginnings of.

—SB

The End of Affluence
(A Blueprint for Your Future)
Paul R. Ehrlich and Anne H. Ehrlich
1974; 307pp.
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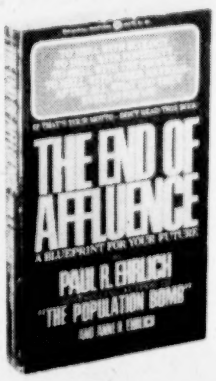

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3. WE ARE NOT ALONE. You discover the sizable roles that foreign governments and industries will play in your future as the interdependent nations of the world struggle over the division of a shrinking resource "pie."

4. MINERS' CANARIES. Attention is focused on Japan and Brazil as nations to watch closely for developments that will have grave repercussions for Americans.

5. GENTLEMEN NOW ABED. You find reasons for substituting faith in yourself for faith in the "leaders" of society, and for personally joining the battle to make a better world.

6. THE MOST BASIC NEED. The provision of the most basic and most threatened of human resources—— food—— is examined in detail and suggestions are given for improving and maintaining your nutrition.

7. A BRIGHTER FUTURE: IT'S UP TO YOU. The possibility is explored of developing a life style that may permit you to enjoy the decline and fall of the superconsuming society.

APPENDIX 1—FIRE FROM A NUCLEAR BURNER

APPENDIX 2—FOOD STORAGE FOR SELF-SUFFICIENCY

READING LISTS

•

Faced with trying to do the impossible and being unable to admit that it *is* impossible, politicians have no choice: they lie. . . . A phrase now often heard from the lips of politicians is that we must "restore faith in our leaders." We disagree. Rather than "restore faith," we must *utterly destroy the last remnants of it*.

•

In trying to evaluate your present location, a number of things should be investigated. One is the vulnerability of your local water supply to interruption or contamination in a severe energy crisis or time of civil disorder. Another is your position relative to sources of food. Must most of it now be imported over long distances? Is there suitable land nearby that could be farmed in an emergency? How good is public transportation in your area? Even if there is no general social breakdown, the demise of the automobile as a way of getting to work or to the food store could come with shocking suddenness.

In the US, we have created at least one nearly perfect model of the kind of place *not* to live in during an age of scarcity. It is called Los Angeles.

•

As with food, it seems sensible, wherever possible, to increase your stocks of first-aid items. You may want to buy a commercial first-aid kit, if you don't have one already, as well as a first-aid manual if a reasonably comprehensive one does not accompany your kit. In some areas a commercial snakebit kit may also be advisable. Other things you can stock without prescription are a mild disinfectant, bandaging materials, alcohol (for use as an antiseptic); aspirin (buy the cheapest, it's all essentially the same); antibiotic creams (watch expiration dates—— value is mostly limited to superficial skin infections); calamine lotion or other nonprescription drugs for rashes, poison ivy, etc.; and antidiarrheal preparations. If you ordinarily need antihistamines, have a supply of those on hand. And if you need birth control pills or other items, be sure to include them. A period of social breakdown is a poor time to become pregnant. If possible, have at least one member of your family take first-aid training.

Rain

Environmental (plus) Access to Access—— primarily for Pacific Northwest but much application outside. Nice work. Hope it lasts.

—SB

Rain
Monthly
Free
from:
Environmental Education Center
Portland State University
Box 751
Portland, OR 97207

Sweet N' Sour: An Alternative Architecture Catalog
Pliny and Daria Fisk
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A specifications/description of various commercially available architectural materials.

Energetics' Shortcomings

BY HAZEL HENDERSON

"Migod, that woman gets around," said Joel Schatz, an Odum energeticist currently in Oregon, of economist Hazel Henderson, currently advising the Office of Technology Assessment for the U.S. Congress. Hazel's name came up because I'd just spent an electric evening with her at a Stephanie Mills mini-salon (hearing such news as: our Social Security system is approaching bankruptcy; and, the vaunted return of oil dollars into the U.S. through massive Arab investment in Wall Street, U.S. Bonds, etc. merely opens another hole—— debt servicing (interest and all that) —— through which our economy hemorrhages into the Mideast).

Hazel was still busy responding to a week-long Energetics workshop in Florida with Howard Odum and company. This letter details it.

Since Odum has joined Ivan Illich and E.F. Shumacher as one of the organizing intellects we attend to (supplanting Fuller, McLuhan, Marcuse), let us quickly buffer the panacea effect with friendly misgivings—— neither "NO" nor "YES BUT" but "YES, AND. . ."

(For Odum's story, see "Energy, Ecology & Economics", EPILOG, pp 469-473.*)*

—SB

October 30, 1974

Dr. Howard Odum
Energy Center
University of Florida
Gainesville, Fla.

Dear Dr. Odum:

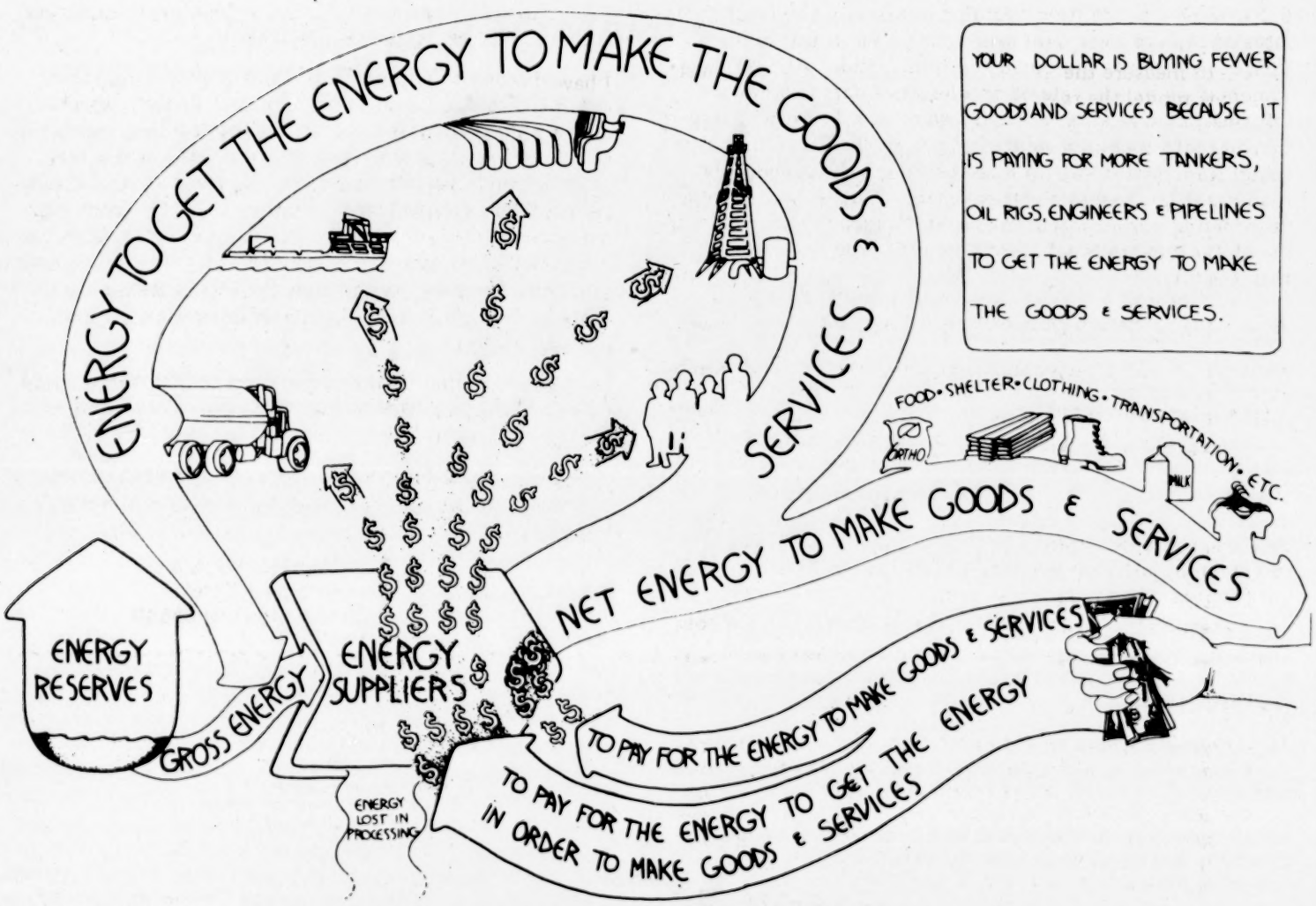
The recent energy workshop was a stimulating experience for me and I wanted to set down some thoughts for you as a result, which may be of some use as the work proceeds.

1. Energy accounting is an order of magnitude better than economic accounting and it should be pressed onto economists with great vigor, and I shall continue that task as best I am able. As you know, your brother Gene and I are still having pretty rough sledding with it at OTA [*Office of Technology Assessment*]!

2. However, energy accounting contains limitations shared by all quantitative methodologies; referred to by Alfred North Whitehead as "the fallacy of misplaced concreteness". It cannot explain all phenomena and I would hope that you would not press it too far so that it becomes suspect as a new "cosmology". It is so deterministic and therefore may obscure truth in other dimensions, for example, human ethical responsibility for our decisions and actions. This is why I reacted so strongly to the unnecessary over-reliance on Lotka's Principle. It is so deterministic as to be almost tautological: "organisms survive because they survive". Worse, you are assuming a heavy ethical responsibility of propagating Lotka's Principle by which any and all human behavior may be justified, whether that of Hitler or our "petroleum hawks", who are dying for a good rationalization to go in and beat up the Arabs. In fact, "Social Lotkaism" could be considerably more destructive than Social Darwinism, because it would be seen as more modern, and therefore more scientific, because it would also have the blessings of ecologists. History is littered with the wreckage and fallout from powerful, simplifying ideas, from Adam Smith's damned "invisible hand", Keynes' pump-priming and macro-economic management sophistries and genetic theories which led to German attempts to breed a "master race", And now we see the latest flirtation with the idea of triage, which hides among its grains of truth a neat way to rationalize our own greed and the extent to which we helped create the problem of overpopulation and Third world poverty.

One can even use Lotka's Principle to refute your own efforts to change our behavior and alter our national decisions by promoting the use of energy analysis: The system itself is giving us the signals, as you yourself maintain, it is telling Henry Kissinger what to say, etc., etc. So why do we need you? Inflation itself is the system's prescription for lowering lifestyles. Why do you think we can tinker with it any better, rather than relying on the corrective path of least resistance that the system has chosen i.e. inflation? One could say that this is also Lotka at work and your efforts at intervention are as meaningless as Henry Kissinger's. Since Lotka raises all these misunderstandings, why not just soft-pedal him? The models are beautiful and don't need this as a crutch.

3. Now to the methodology itself: I hope that you will be able to avoid the reductionist trap inherent in the whole business of doing research under contract. I know it's unfair to hold you to a higher standard than anyone else—— but I have such high hopes for energetics. There is always the danger of doing just what the "client" asks and is willing to pay for. This often leads to the fatal flaw of accepting the client's definition of the problem. In a very real sense, reality is what we pay attention to, and unless a researcher assumes the responsibility of examining the contractor's assumptions and problem definition, he may merely end up confirming the client's bias. We are now suffering from the crises of multiple sub-optimization precisely because research usually follows this path of least resistance, and data is only amassed in accordance with prevailing assumptions. (The familiar story; "I wasn't paid to study that—— I was paid to study this" etc.) This is why we have so little economic data on even the easily-quantifiable social and environmental costs—— we


ENERGY TO GET THE ENERGY TO MAKE THE GOODS & SERVICES
YOUR DOLLAR IS BUYING FEWER GOODS AND SERVICES BECAUSE IT IS PAYING FOR MORE TANKERS, OIL RIGS, ENGINEERS & PIPELINES TO GET THE ENERGY TO MAKE THE GOODS & SERVICES.
FOOD • SHELTER • CLOTHING • TRANSPORTATION • ETC.
ORTHO
MILK
NET ENERGY TO MAKE GOODS & SERVICES
ENERGY RESERVES
GROSS ENERGY
ENERGY SUPPLIERS
ENERGY LOST IN PROCESSING
TO PAY FOR THE ENERGY TO MAKE GOODS & SERVICES
TO PAY FOR THE ENERGY TO GET THE ENERGY IN ORDER TO MAKE GOODS & SERVICES

Energetics diagram showing how inflation is driven by increasingly inaccessible energy supply.
(From Office of the Governor, Oregon.)

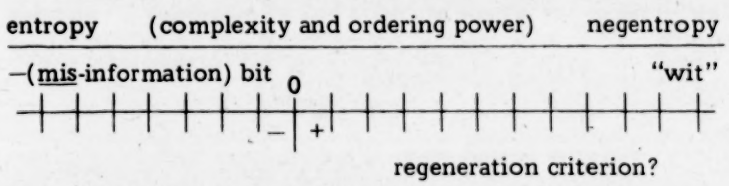
never paid anyone to collect it. I pointed out this kind of danger at the Workshop in the presentation on the relative efficiency of cooling towers v. using an estuary for receiving the waste heated water. There were obviously many other options which might have been explored: e.g. other uses of waste heat, the possible cumulative effects of additional power plants in the estuarine area, and most of all, whether the power plant should have been built in the first place and whether reducing Florida's electrical demand curve might not have been an alternative option. In such cases (I am also trying to develop this thinking at OTA) one should go back to the client and say that other significant alternatives exist which must be explored and compared in order to arrive at a true comparison of costs, risks and benefits, and either request a larger budget to accomplish this, or refuse the contract (very hard, I know!).

4. Cases of Conflicting Values: for example, we might both agree that there are seldom any net energy reasons for constructing add-on pollution control equipment onto inherently inefficient, polluting processes. However, even if this is the case, say with respect to adding particulate control devices to urban power plant stacks, where at the same time large populations are at risk and the health costs and absenteeism costs can be approximated, who is to choose the trade-off between health risks and costs v. net energy efficiency? The researcher? the city voters? the doctors? Again, there is a heavy ethical responsibility for the researcher to not make assumptions that the net energy values are to be placed higher than the medical and absenteeism costs and the health values of the people involved. The best the researcher can do is to point out that there is a policy choice to be made and that while the data on the net energy efficiency may be solid, the data on medical and absenteeism costs may be sparse because we have never bothered to pay people to collect it and traditional economics has a bias against even noticing "externalities" such as these social costs. All this while agreeing with you that the whole urban structure is itself parasitic and probably unsustainable—— we still have to consider the people who are trapped in this structure—— no less valuable human beings than we are.

5. This brings me to a substantive problem in the methodology you use in energetics: the danger of too readily converting dollars (market prices, i.e., anthropocentric expectations of availability) back into kilocalories, and thus infecting the analyses with their inherent distortions. It is fine to translate kilocalories into dollars for the benefit of economists and decision-makers—— but you cannot reverse the conversion without incorporating all the errors of the money system. It is the kilocalories that are real, not the dollars. This is a new replay of Gresham's Law; bad money drives out good money! For example, when you incorporate in your models kilocalorie values for information merely based on conversions from dollar values set by the notoriously inaccurate value placed on information by the market pricing system, you incorporate the errors of a generation of economists who have never understood how to price information correctly (see Boulding). Information is undervalued because it can too often be treated as a free good—— being the society's investment in its stock of knowledge, to which the entrepreneur did not contribute, and from whom society does not even exact maintenance costs! In some cases, the entrepreneur can even degrade the knowledge stock with powerfully-amplified, dis-organizing information, i.e. advertising, which is now costing us dearly in lost adaptability and options.

6. Research Agenda Item: Valuing information and setting its rates of depreciation. You need to set up a scale, similar to FFWE, to measure the quality of information. Also we must somehow model the rate of obsolescence/depreciation of information in relation to the speed of social change. I suspect that mis-information is now giving us more trouble than anything! Information can no more be valued homogeniously than can solar, coal or electrical energy. The scale runs from dis-ordering mis-information and its depressingly lengthy half-life all the way up to what Boulding calls the "wit" (rather than the bit).

Scale of Information Quality from a Thermodynamic View



This scheme is something I have been playing with. The regeneration criterion seems to be one way of defining information quality: below a certain level of complexity it can regenerate structure; above that complexity it cannot. (The trade-off however, of the higher ordering information is that it has lost flexibility/adaptability).

I have discussed the problem of valuing information accurately with my associate Ira Einhorn (physics), who has been thinking about it for years. He believes that the thermodynamic view of information value is a "rear-view mirror" approach and that information also exists in another dimension not yet explained by the existing laws of physics, e.g. we know that information programs and directs energy, but we do not know how to represent this process as an equation yet. Others working on this include Gregory Bateson and Stafford Beer (in Britain). I shall continue with my own amateur efforts!

I am also including some comments on the Workshop made by one of the participants, Steven Vanza, who wanted me to pass them along to you.

Again, I enjoyed the Workshop immensely and these comments are sent to you with respect and affection. Keep up the good work!

Hazel Henderson
60 Hodge Road
Princeton, NJ 08540

Turtle Island

To understand whole evidently requires understanding with more than rational consciousness. I mean, with experience, with dreams, with art, with poetry–– (not-quite synonyms for knowledge which is real but not nameable). Gary Snyder's poetry addresses the life-planet identification with unusual simplicity of style and complexity of effect. This new book is his best in years, since **Earth House Hold**.

–SB

Turtle Island
Gary Snyder
1974; 114pp.
$1.95 postpaid
from:
New Directions Publishing Corp.
c/o J.B. Lippincott Co.
East Washington Square
Philadelphia, PA 19105
or Whole Earth

Stewardship means, for most of us, find your place on the planet, dig in, and take responsibility from there–– the tiresome but tangible work of school boards, county supervisors, local foresters–– local politics. Even while holding in mind the largest scale of potential change. Get a sense of workable territory, learn about it, and start acting point by point. On all levels from national to local the need to move toward steady state economy–– equilibrium, dynamic balance, inner-growth stressed–– must be taught. Maturity/diversity/climax/creativity.

"ONE SHOULD NOT TALK TO A SKILLED HUNTER ABOUT WHAT IS FORBIDDEN BY THE BUDDHA"

–Hsiang-yen

A gray fox, female, nine pounds three ounces.
39 5/8" long with tail.
Peeling skin back (Kai
reminded us to chant the *Shingyo* first)
cold pelt. crinkle; and musky smell
mixed with dead-body odor starting.

Stomach content: a whole ground squirrel well chewed
plus one lizard foot
and somewhere from inside the ground squirrel
a bit of aluminum foil.

The secret.
and the secret hidden deep in that.

TOMORROW'S SONG

The USA slowly lost its mandate
in the middle and later twentieth century
it never gave the mountains and rivers,
trees and animals,
a vote.
all the people turned away from it
myths die; even continents are impermanent

Turtle Island returned.
my friend broke open a dried coyote-scat
removed a ground squirrel tooth
pierced it, hung it
from the gold ring
in his ear.

We look to the future with pleasure
we need no fossil fuel
get power within
grow strong on less.

Grasp the tools and move in rhythm side by side
flash gleams of wit and silent knowledge
eye to eye
sit still like cats or snakes or stones
as whole and holding as
the blue black sky.
gentle and innocent as wolves
as tricky as a prince.

At work and in our place:

in the service
of the wilderness
of life
of death
of the Mother's breasts!

But swallow it all. Size is no problem, a little *space* encloses a huge void. There, those great whorls, the stars hang. Who can get outside the universe? But the poem was born elsewhere, and need not stay. Like the wild geese of the Arctic it heads home, far above the borders, where most things cannot cross.

Now, we are both in, and outside, the world at once. The only place this can be is the *Mind*. Ah, what a poem. It is what is, completely, in the past, present, and future simultaneously, seeing being, and being seen.

Can we really do this? But we do. So we sing. Poetry is for all men and women. The power within–– the more you give, the more you have to give–– will still be our source when coal and oil are long gone, and atoms are left to spin in peace.

SPARE CHANGE?
MDCCLXXIV
NEILL

Enough Energy for Life

&

The Next Transformation of Man

BY LEWIS MUMFORD

These two lectures were given March 29 and April 9, 1974, at the Technology and Culture Seminar at M.I.T. by Lewis Mumford, author of **Technics and Civilization** *(1934-1962),* **The Pentagon of Power** *(1970), and twenty-two other books in print on the functions and pathologies of civilization. Steve Baer showed us the piece. Dr. Mumford and M.I.T. gave permission to publish.*

Is there anything critically different about the crises in this century from the innumerable ones in civilizations before. Yes, there is.

—SB

In historic perspective our current energy drain is only a part of the geotechnic devastation that has issued from the massive material triumphs of every militarized and mechanized culture from the Bronze Age on. What alone makes our present plight different from that experienced by the megamachines of Egypt, Mesopotamia, China, or Rome is that now not a single area, but the entire world is threatened by this under-dimensioned technology, whose human weaknesses have been magnified and largely caused by the exorbitant powers it now commands.

One more cautionary observation about any short-term consideration of the ecological crisis, of which the conversion and distribution of energy forms a major part. The current approach takes for granted that only physical factors need to be taken into account. So we still exclude from our calculations the insistent pressure by our financial, military, political and scientific organizations for continued quantitative increases of energy whatever their demonstrable environmental depletions or threats to collective life. We now assume, on seemingly sound theoretic grounds, that these insatiable demands for an unlimited supply of energy may become feasible in a pollution-free medium possibly by the year 2000. Granted. But what reason have we to assume that our present technocratic culture, if it continues to operate on its present terms, will actually remain in tolerable working order even until the year 2000, just twenty-six years distant? This optimistic estimate curiously takes no account of the escalation and acceleration of destructive forces during the last half century. In this brief period countless millions of people, throughout the planet, met premature death through war, planned political extermination, famine, and closely related epidemics of influenza and typhus; while hospitals for the mentally disturbed and for victims of drug addiction now house an ever larger portion of the population. Why are we still so slow to recognize that these, and a multitude of similar phenomena, are the unmistakable hieroglyphics of a disintegrating civilization?

Even if we reduce our calculations to purely physical factors, every hopeful estimate must be re-examined. The supply of the basic raw materials has been swiftly diminishing, and their free flow along the world routes established in the nineteenth century is already restricted and erratic. Our high energy technics is now dependent on rare metals and rare earths that are in short supply or are spottily distributed over the planet, and the annual exploitation of these supplies is no longer guaranteed by economic competition in an open market. This quasi-monopolistic control, as the Arabs and the American oil conglomerates have recently demonstrated, has exposed every dependent economy to political blackmail. If our only problem were to suggest a more thrifty program for utilizing our physical resources, a more rational and equitable distribution could have been programmed half a century ago, when most of the basic data were already available. If you doubt the possibility of such a timely response, read Stuart Chase's **The Tragedy of Waste**, 1925, Professor Erich Zimmerman's **World Resources and Industries**, 1933, Carl Becker's **Progress and Power**, 1936, or for that matter, my own survey, **Technics and Civilization**, which came out in 1934.

Unfortunately something was lacking in almost all these early assessments of the power crisis. In the belief that science need concern itself only with objective, measurable, "rational" factors, we overlooked those qualitative, subjective, often grossly irrational factors that are not open to public inspection while they are incubating within the human mind: more hidden there than an embryo stirring in the womb. Yet these erratic, unconscious motivations have been at work in every recorded culture—— now intensifying human creativity, now degrading it in orgies of perversion and destruction, unrecorded, indeed unimaginable, in any other animal species.

In our fascination over our redoubtable mechanical and electrical inventions, we have paid no attention to the pathological life-curbing accompaniments of a power system which is released from internal restraints, and is haunted by obsessive dreams of omnipotence and omniscience. The most

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staggering technical advances of the present age—— instant communication, supersonic transportation, centrally programmed automation, remote control, instantaneous collective destruction, bureaucratically processed information and intelligence, absolute obedience to divine or royal command—— were already present in the magico-theological fantasies of the dominant minority from the Pyramid age on. Thenceforward these irrationalities became the motivating forces in the structure of every military or industrial system, and since the seventeenth century are still in operation, more menacingly than ever before.

In my two volume work on 'The Myth of the Machine' I have given a well-documented account of these ambivalent processes, demonstrating how the many immense creative and constructive achievements since 4000 B.C. have been chronically offset and nullified by organized outbursts of collective malice, hostility, destructiveness, and degradation. But the credit for doing justice in our time to those irrational components goes to two prescient earlier minds. The cultural historian Jacob Burckhardt, just a century ago, predicted the political enslavement, the unrestricted military violence, and the moral corruption we have now lived to see. Thirty-odd years later, the American historian Henry Adams in 1905 deduced from correlating the steep upward curve of energy production from the thirteenth century with the newly discovered properties of radium, that bombs of "cosmic violence" would be invented shortly, that law would disappear as theory or *a priori* principle and give place to force, morality would become police: disintegration would overcome integration. What once seemed a wild intuitive extrapolation of scanty data has turned out to be the soberest possible description of the total breakdown we now must face.

What still makes it difficult for our contemporaries to accept these observations is that they flatly contradict the basic premise of modern culture—— namely that the increase of physical power accelerates in every area and that there are no limits to automated productivity or compulsory consumption in our affluent power economy, except a failure to yield sufficient pecuniary profit to further the continued expansion of the system. What is inherently irrational in this system has never been visible to those who are in control: namely, that on a short-term basis it works equally well to the benefit of the favored minority who operate the system whether its products are good or bad, whether they enhance the possibilities of human development or reduce them and undermine them—— at least so long as the megamachine itself remains in operation.

In terms of every classic power system, there is no difference between 'goods' and 'bads,' to use de Jouvenel's terms, so long as they equally serve the power elite. Quantity alone counts. This is doubtless why our most refined demonstrations of abstract scientific thought boast as the supreme guarantee of their 'objectivity' that they are value-free. The ideal supports of such a value-free power system, with no built-in organic controls, are war, man-made extermination, and compulsive waste; and its necessary end-products are rubbish dumps, auto cemeteries, extermination camps, and blasted cities. Our current insane wastage of energy on lethal toys like supersonic planes, atomic reactors, nuclear weapons, and space stations for military spying, all bear witness to the exorbitant pathology of power when it dominates instead of serving the more moderate life-directed needs of organisms and human communities.

Since all these negative factors have been visible in penalizing quantities since the coalescence of the first great power civilizations five thousand years ago, how is it that the human race has so far lived to tell the tale? The answer is so simple, indeed so obvious, that I am embarrassed to put it in words, for it has escaped the attention of attested scholars in anthropology, archaeology, and history. From the emergence of man as a distinct species, the greater part of the human race has lived outside the power system, has never voluntarily adopted the godlike pretensions of power ideologies, and has never submitted, except under compulsion, to its harsh regimentations and enslavements and deprivations which, in the name of the Gods, were imposed by the dominant minority—— those whom we still accept though with increasing dubiousness, as our 'decision makers.' In short, the citadels of power have controlled effectively only scattered areas: the majority of mankind, spread out in small tribal or village communities, has lived in accordance with more organic principles, and never lacked sufficient power for their vital needs, or an adequate means of generating it and modulating power for their own limited ends. Except for the uncontrollable explosive energies of earthquakes, tornadoes, or volcanic eruptions, man has always been able to make power, even the sun's energies, conform to life-sustaining human needs and purposes.

Now, during the last decade, a flood of books and papers has appeared in an attempt, sometimes almost frantic, to call attention to the dire exhaustion of natural resources, to the failing supply of fuels, to the dangers of nuclear bombs and nuclear wastes, to the chemical contamination of water, soil, and air, to the breakage of food chains and the disappearance of habitats favorable to life, mainly through human ignorance, recklessness, and pecuniary greed. Since I have written hardly a book during the last fifty years that did not touch on some aspect of this ecological disruption, I have acquired an otherwise undeserved repute as a professional ecologist; and as a result I have been favored with most of this literature and have come abreast with the latest findings of science: all the more easily because these books are somewhat repetitive. But to my astonishment and dismay I have yet to find a single work before 1973 that deals with the three forms of energy most essential to human development, or that recognizes that the physical problem of commanding enough energy to support life was solved at the very moment that living organisms emerged from the primal preorganic broth.

Once we see the power crisis today in astronomical and geological perspective, our present difficulties and our mounting anxieties become less disconcerting, and our absurdly short-term solutions become less attractive. Life began on this planet with the conversion and storage of solar energy by the first unicellular plants. The energy requirements of all later life were met when the most primitive living organisms began to utilize our gigantic atomic reactor, the sun, whose radiations at the safe distance of ninety million miles were further shielded by the earth's atmosphere from harming living organisms.

This primal energy source has met the most rigorous qualifications for an endless supply of pollution-free energy, capable of meeting every requirement for organic growth. Sun power, plant power, animal power, and ultimately man power are all now available in greater and technically more easily controllable quantities than ever before. Thanks to the transformations effected by myriads of botanical and zoological species, we have at our disposal a superior technology of incredible complexity, variety, and resourcefulness—— compared to which all man-fabricated power systems are crude, feeble, rigid, tardily responsive to organic requirements and human needs.

If we focus our attention on now available solar energy, we shall find that all our basic energy needs are at hand in abundance: not only kinetic energy for current supplies, but potential energy stored in living cells and organs, in plant fibres, wood, fossil fuels, bodily reserves of fat and sugar, muscular structures, and etherealized ultimately in subjective super-organic form in the tissues of the human brain. Unlike the existing one-sided power system, with its unlimited demands for physical energy, organic energy functions in proportion to the structural requirements of living organisms, with their built-in limitations on inordinate growth, excessive reproduction, or functional misuse. We shall not understand the real nature of the energy crisis unless we realize that it comes from the fact that our historic power systems, by their very concentration on quantitative expansion, indeed by their active hostility to organic limitations, have still no means of balancing production against consumption, or consumption against autonomous creativity. The key to having a sufficient supply of energy is to detach one productive process and function after another from the corporate power network, and restore them to the identifiable human communities capable of actively utilizing sun power and plant power, man

THE MEGAMACHINE GATHERS ITS FOOD..

power and mind power, instead of surrendering all authority to machines, mechanical organizations, and electronic computers and in the end to their ultimate monitors and rulers, the Power Elite.

In abstract terms, then, the solution of the energy crisis would seem simple: transform solar energy via plants, and produce enough food power and man power in forms that would eliminate the wastes and perversions of power demanded by our high energy technology. The solar element of this problem has been boldly outlined by an extremely inventive atomic physicist, Theodore Taylor, who in the service of the Pentagon, was for long successful in contriving, to his present horror, more lethal models of nuclear bombs. Recognizing the viability of plant fuel, Taylor calculates that one acre of corn produces annually energy equal to five tons of medium grade coal, and one acre of sugar produces four times that amount. On this basis, he reckons that only twenty millions of acres of land, with newly designed greenhouses, would be needed to meet the entire energy requirements of the United States.

With the direct conversion of solar energy by plant growth as our primary source for food and fuel, the extension of other auxiliary supplies, through water power, wind power, coal and oil, would give further flexibility to the whole system of supply, storage and distribution. Under such a unified program nuclear power for generating electricity would be kept in reserve as a stand-by resource, to be called upon only in emergencies to make good any gross deficiencies in plant production derived from accidents of nature. Such a balanced pattern would meet all the exigencies of life for an indefinite period.

And now I come back to an aspect of the present energy crisis that threatens to nullify man's historic transformation from animalhood to humanhood. Within the experience of living men, the substantial organic neolithic basis of every later power system has crumbled away. As a result the mainstays of all previous power systems, war, waste, robbery, spatial expansion, human regimentation, and the exploitation of workers as beasts of burden and substitute machines, are now operating over wider areas, at higher rates of speed. So far from being protected by the rational methodology of science and the exact calculations of technology, the danger to all living species, and first of all to man has increased: for all the triumphs of mechanization, automation, and cybernation only give more power to the negative forces at work in the human mind: identifiable in art and literature and daily life as the "counter-culture" or the "cult of anti-life."

The 'future shock' that should now dismay us has nothing to do with those plausible science fiction extrapolations which Clarke, Toffler, McLuhan, and Fuller have characterized as inevitable, whether we like them or benefit by them or not. The future shock that should alarm us now is the discovery that our main factor of safety namely, neolithic food production, which for twelve thousand years protected mankind from the miscalculations and repeated miscarriages of the power system, no longer feeds into a life-economy.

Up to 1940, as the French geographer Max Sorre has pointed out, four-fifths of the population of the planet lived in rural areas, engaged in agriculture, horticulture, or cattle raising, along with a variety of related occupations. Today in the United States only ten or fifteen per cent of the entire population is needed to grow a surplus of food. Today's industrialized agriculture is an integral part of a complex which has no other values or purposes than its own expansion. Plant power, like petroleum or nuclear power, is now increasingly in the hands of state-supported corporations and conglomerates. All over the world, during the last three centuries, capitalist enterprise has wrecked every vestige of the arts and crafts in order to monopolize the market for the mass production of machine goods and services; and today Western nations are completing the process by extending that power system—— disguised as a relief of poverty in under-developed countries—— to what we now call the Third World.

We have still to grasp the insidious and ultimately disastrous effect of the obliteration of agriculture as a specifically human way of life; the emptying out of a large reservoir of human beings, capable of taking over all the essential human occupations, once the larger system breaks down, and recapturing as self-directed workers the human prerogatives we now turn over to dictatorial 'decision makers,' centralized bureaucracies or to automated machines. But note the final threat: not merely the obvious threat of total monopoly, but the even more dire eventual threat of starvation as soon as food production ceases to be profitable.

If you have followed the argument so far, you will realize that there is no quick and simple answer to the energy crisis, for it involves nothing less than the replacement of an overheated power economy, which goes back to the very beginnings of civilization in the Pyramid Age, by a life economy whose original neolithic components must now be completely re-structured, in every aspect, so as to make the fullest use of our planetary cultural resources—— resources that mankind, for the first time in its history, now has full

access to in all their incredible richness. Fortunately in contemplating such an organic transformation, we have a wealth of historic experience and fresh biological insight to guide us. We do not have to invent an organic system favorable to human purposes: nature has already done that. Our first task is rather to detach ourselves from the automatisms of the existing Power System, which recognize no other values or purposes than its own physical and financial expansion.

By invoking the direct use of solar energy by plants as the organic key to all the other aspects of the energy crisis, I have simplified our immediate problem, but likewise immensely complicated the ultimate solution. For virtually every existing institution will have to be re-oriented to our essential life needs if we are even to restore the many human potentialities we have lost in the pursuit of power alone. Obviously the close of this lecture is not the place to outline the implications of such a transformation, even in the most superficial manner. But if I have stated the problem correctly, I may add, with a deprecating smile as the mathematician Gauss did on a famous occasion: "I have found the solution: we have now to discover the way to arrive at it." The first effective step would be to make a private and personal response to the energy crisis by decreasing our dependence upon the existing power complex, and stripping our own demands for power and material wealth to such quantities as serve a more meaningful and purposeful life. As for the public collective answer, which involves the re-orientation of institutions, communities, and nations, this will doubtless take a little longer, possibly four or five centuries longer.

• •

THE NEXT TRANSFORMATION OF MAN

My original intent, in preparing this lecture, was to marshall the evidence for a quite different interpretation of the nature of man than that which dominates so much of

Western society today. As a result of the industrial and scientific activities of the last two centuries, most of us have formed a constricted picture of human development, which identifies the emergence of man from animalhood with his using and making of tools. For more than a century, we have read back into the original transformations of man the beliefs, the practices, the ambitions, and the obsessions of our own very brief phase of human history.

As a result of this preoccupation, Western society has overstressed the formative role of technology, and has so far not confronted the paradox of our age: namely, that at the very apex of man's scientific triumphs, all organic existence is now threatened by the demonic misapplications of his new powers, which give to planetary decision-makers, bureaucratic organizations, weapons systems, machines and computers, the authority to supplant or to destroy any or all of the originally autonomous manifestations of man's historic culture.

In **The Transformations of Man** I presented, twenty years ago, notably a different picture of man's emergence from animalhood. This picture suggested that technology, so far from being bound up originally with the fabrication of tools, the conquest of the environment, and the replacement of nature, had a far more essential and formative part in the emergence of man from his primordial animalhood.

On my reading of the evidence of man's first achievements in technics derives from what the French anthropologist, Andre Varagnac, has identified as the technology of the body; and the most significant part of this evidence is still at hand if one follows the spontaneous development and parental training of that living fossil of man's past, the human baby. The only tools dawn man possessed were his own organs, though many of these had to be reorganized and reshaped before they could perform their new functions. This transformation involved all man's organs, even his bowels, not merely his hands; and it took place under man's dominant organ, his multi-functional, hyperactive brain, which no longer responded to external pressures alone, following the well-worn paths of animal behavior, but fabricated a complementary world, a world of signs and symbols, of forms and meanings by which man was able to superimpose his conscious purposes upon his own nature and his communal environment.

In replacing the nineteenth century definition of man as a tool-making animal, engaged mainly in manipulating tools and conquering external nature, I was not of course alone. At the same time the anthropologists A.M. Hocart and Leslie White, and the philosopher, Suzanne Langer, to say nothing of earlier scholars from Tylor to Edwin Sapir, were arriving at similar interpretations. They showed that for man's original passage from the animal to the veritably human, 'minding' was more significant than 'making'. This fact explains why surviving primitive groups almost destitute of material equipment of any kind, nevertheless participate in meaningful rituals, dances, and songs; have developed complex social regulations governing sexual and social behavior, and above all have well-developed languages capable of bringing every relevant part of their experience, external and internal, into a common cultural pool. Thanks to man's success as a symbol-maker, he supplied his brain with the special foods—— sounds, images, symbols—— that probably quickened its further growth and its powers of organization. Through this intervention of symbols, the seemingly aloof objective world for the first time literally 'came to life.' Without the invention of human language, all existence would largely have remained a meaningless dumb show, as indeed it actually becomes when the language centers of the brain are permanently damaged.

Though I developed these ideas at some length in the first volume of **The Myth of the Machine**, it is obvious that they cannot be adequately presented and re-enforced in a single lecture, still less in a lecture that attempts to draw into a common focus both man's long past and the immediate pressures and challenges of contemporary events. Even the whole seminar at M.I.T. that I have been conducting this spring could do little more than open obscure, half-marked trails for further thought. As a result my lecture, when transcribed from the tape recorder, proved far too tentative and dispersed to be subjected to the ordeal of print; while my earnest efforts to reorganize the lecture sufficiently to clarify its main ideas demanded more time, it turned out, than I could give to it. But I regret particularly in not being able to carry further an insight that has been as yet only partly expressed in print: namely, that technics itself originally developed not as a means of physical survival but as a plaything of the mind—— like ritual or song; and that far along in man's history, even much later than fifth century Greece, there remained no hard and fast distinction between work and play, between technics and art.

This shift in emphasis, from physical survival to mental and cultural development, has serious implications for us today. As one anthropologist put it in a review of my **Technics and Human Development**, if Mumford's thesis is sound, then man has still within him sufficient resources to alter the direction of modern civilization, for we then need no longer regard modern man as the passive victim of his own irreversible technological development. I was grateful for this courteous admission; and not less so because Julian Steward had plainly been shocked at anyone's holding such unorthodox views and thought they could not possibly be correct.

Steward had indeed caught the point. But he had not perceived that my interpretation threw a new, and more favorable light on technics itself, as a vital formative agent in man's higher development. More than that, I suggest that technics has provided an indispensable safeguard against man's disorderly subjective impulses and often lethal hallucinations—— that is against the destructive 'negative creativity' that derives from the same inner world out of which the great creations of language and art and literature, of religion, philosophy and science have come forth. Was it not the capacity for enjoying repetitive ritual that made language itself feasible, as Lili Peller once brilliantly suggested; and was this not what eventually turned play into effectual work? And if that is so, what shall we say of an 'advanced' technology which, under the present pecuniary-power complex, has sought to turn all these orderly human processes over to profit-making mechanical and electronic substitutes—— leaving human beings themselves without any inner resources or autonomous activities of their own: in short, facing an increasing vacant and meaningless life? Would this not throw a light perhaps, on the ominous psychotic disturbances in Western civilization today, now spreading all over the world?

This question, which I first dared to put in a paper presented at the Smithsonian Institution Centenary would have been worth elaborating in a whole series of lectures. For perhaps occupational therapy, now fairly generally used at a certain stage in the treatment of individual breakdowns, must now be applied on a grand scale to our whole society as a means of restoring our cultural balance, at whatever sacrifice of our compulsive technological productivity and our meaningless affluence. With that teasing thought I leave this lecture to be "continued in our next."

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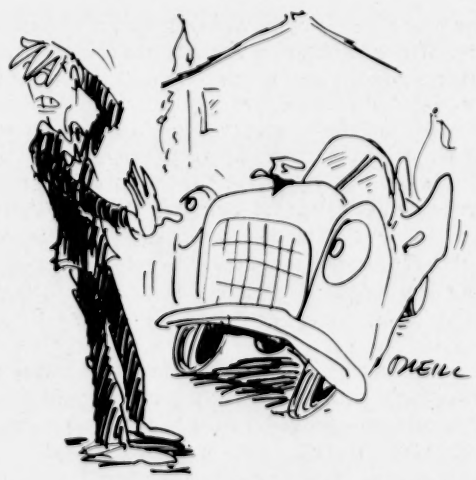

"BEGONE..O' MEANINGLESS AFFLUENCE!!"

GREGORY BATESON

Gregory Bateson's is the organizing intelligence that I pay the most attention to these days, especially now that he's focussing again on the question of evolution in search of better fundamentals than Darwin gave us.

Here are three items from a recent raid on Gregory's Santa Cruz office (in cahoots with his secretary Judy van Slooten). The first is a chapter opening from a book in progress, **The Evolutionary Idea** *(E.P. Dutton, due sometime in 1975), discussing what some have called "The reducing value of perception".*

The second is notes, pre-pondering, for a conference on New York's Robert Moses that Gregory is participating in this winter. Here we are again at the barricades between energy and information. They're not equivalent, they're not continuous; their interface is the locale of so much basic error that to finally comprehend their relation will re-order our universe and probably re-direct our history.

The third item is Professor Bateson's reading list, rather different from most people's.

—SB

The Creature and Its Creations

In the present chapter we shall follow Paley's argument backwards: we shall accept Paley's premise that the symptoms and evidences of mental creation are always to be found in the products of that creating. Moreover, I have already asserted that the evolutionary process is in a formal sense analogous to (or simply a special case of) mental creativity, and this assertion is attested by the characteristics of its created products, the living creatures.

Now, taking another step down the ladder whose each step is the relation between a creator and a creature, we shall see that the created products, the poems and the works of art, produced by those living creatures are in turn marked by the evidences of that mental creativity.

The "Criteria of Mind" discussed in the (first) chapter are now to be searched for among the products of mind.

Finally I shall argue that the very nature and purpose of art and poetry is to exemplify the creativity of mind and that this is the appropriate fundamental theorem for a science of aesthetics.

Wordsworth marks that, to "Peter Bell",

> *A primrose by a river's brim*
> *A yellow primrose was to him*
> *And it was nothing more.*

To the poet, the primrose can be something more. I suggest that this something more is, in fact, a self-reflexive recognition. The primrose resembles a poem and both poem and primrose resemble the poet. He learns about himself as a creator when he looks at the primrose. His pride is enhanced to see himself as a contributor to the vast processes which the primrose exemplifies.

And this humility is exercised and made valid by recognizing himself as a tiny product of those processes. Even within his own living, his conscious self is little more than a middleman, a publisher and retailer of the poems.

And this humility is exercised and made valid by recognizing himself as a tiny product of those processes. Even within his own living, his conscious self

"Dr. Bateson," said the lady on the phone, "how will I recognize you at the airport?"
"Welll, I stand six feet five and I'm English and elderly. I have a beak like an Englishman."

is little more than a middleman, a publisher and retailer of the poems.

Be all that as it may, we return to consider data. For this purpose, perhaps "Mary had a little lamb" would perhaps serve as well as "To be or not to be. . .", but for the sake of keeping overt the reflexive mode, I shall begin with the easier task of examining an overtly reflexive poem: Wallace Stevens' "The Man with the Blue Guitar".

Here the poet baldly asserts two-thirds of the way through the longish poem

> *Poetry is the subject of the poem,*
> *From this the poem issues and*
> *To this returns. . .*

So let us take him at his word and consider first this poem as an overt statement of the poet's view of his own creativity and consider this statement as a source of evidences of mind at work.

The poet sees himself as divided from "Things as they are". Indeed there is a matter about which the organism (the poet, in this case) can say nothing. This matter is, in this poem, called "Things as they are". Perhaps it—— this undiscussable matter—— is only a fiction. But "they" (the world of audiences—— of people "as they are") criticize the singer (the poet).

> *They said, "You have a blue guitar,*
> *You do not play things as they are."*

But this, after all, is the circumstance for all organisms. Between us and "Things as they are" there is always a creative filter. Our organs of sense will admit nothing and report only what makes sense. "We", like the general of a modern army, read only intelligence reports already doctored by agents who partly know what we want to read. And our outputs are similarly doctored by ourselves—— the outputs must, forsooth, be harmonious. The "Blue Guitar", the creative filter between us and the world, is always and inevitably there. This, it is, to be both creature and creator. This the poet knows much better than the biologist.

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DRAFT:

Scattered Thoughts for a Conference on "Broken Power"

1. The title refers to a characterising theme of our epoch: that the concentration of political power which enabled Robert Moses, the "Power Broker", to act effectively, is today a sociologically and psychologically obsolete phenomenon. As things are today, such concentrated freedom of initiative could only be recreated by emergency (war, revolution, or ecological disaster); and perhaps a question for the conference will be: how can large scale decisions of the scale of city planning and upward be reached and implemented?

2. Note that the scale of decision is to be measured in space, in dollars and materiel, and in time. The active political life of a human being is usually less than forty years—— and today the time span of decision—— especially ecological decision—— is rapidly becoming much longer than this.

3. As a result of systems theory, ecology, cybernetics, and even semantics, the metaphor, "power", as used in talk about politics and personal relations is no longer acceptable. In principle all metaphors derived from a physical world of impacts, forces, energy, etc., are unacceptable in explanations of events and processes in the biological world of information, purpose, context, organization and meaning. The "power" metaphor must therefore be carefully pulled to pieces for whatever meaning it has—— and must be looked at, as a functioning falsehood or error, causing what pathologies? Self validating up to what point?

4. It will be a task of the conference to try to spell out in terms of patterns of interaction in real time what the metaphor "power" really denotes—— a re-examination of the basic premises of political science in the light of cybernetics. Some partial meanings of the metaphor are offered in the form of sample sentences:

a) "Power" is (or is located at) bottlenecks of information flow. The "powerful" individual receives much information and has decision (or just is lazy and inefficient) over whether the information shall be passed on.

b) "Power" is located at points of decision regarding distribution of rewards and punishments.

c) "Power" is located at points of decision regarding "values"—— what shall be rewarded and punished. (I.e., "Christ" is still perhaps powerful in this sense.)

d) "Control" (by example, charisma, etc.) of taste—— rage—— amusement——

e) "Control" of the definition of contexts, punctuation, etc.

f) "Control" of the flow of goods and services.

5. Basic questions of the economics of "power" are unsettled, i.e., we have to ask about "saturation". Are there limits to concentration of "power" in one part of a system, as there are limits to concentration of information? Is "power" in any sense—— a) through f) above—— used up? Is "power" regenerated? Etc.

6. What are the units of measurement in terms of which we say that A has more "power" than B? Are comparisons of power transitive? (I.e., if A has more than B; and B has more than C; does it follow that A has more than C?) In general, "powers" (as defined

by 4a) through f)) are not expectably transitive quantities.

7. Relation of "power" to skill in its manipulation. (Note that "skill" as measured in games is not a transitive. If team A beats team B; and B beats C; A will not necessarily beat C.)

8. Relation of "power" to scope, either in time or space. Note that "power", when scope is large, begins to approximate "wisdom". But wisdom crieth out in the house tops and no man regardeth?

9. Relation of "power" to expertise. It is here that the architect, engineer, ecologist and other persons with special technical training have their say.

10. Relation of "power" to myth. Can we say that current mythologies of health, etc., etc., are in some sense "powerful"? Who makes these myths? And when? And how?

11. All in all, when we poke the metaphor, we find that it conceals a vast tangle of interlocking notions, none of which gives any support to the analogy between social, psychological and organizational "power" and physical power (energy per hour, MV^2/T, horsepower, or watts, etc.).

12. Note that the myth that political success depends on "power" which somehow resembles horsepower and watts must necessarily corrupt. It is perhaps the myth that corrupts more than the success. . .

13. In any organized proceeding, the multiple senses of "power" become evident. Consider a court of law. There is one sort of "power" for the judge, another sort for the jury, other sorts for the attorneys on each side, a special sort for the defendant, and another sort again for the policeman at the door. It is precisely the differentiation of sorts of power that is basic to all systems (political, ecological, etc., etc.), and this fact necessarily bankrupts the analogy between power in physics and "power" in politics.

14. Perhaps the nearest "reality" to the metaphoric myth of "power" is a large or important part in an ecosystem. And in this new metaphor the word "part" carries two meanings:

a) The individual who is in a crucial position in the system is a part of that system and is therefore subject to all the constraints and necessities of the particular part-whole relationship in which he exists. The part can "control" the whole only up to a formal logical level.

b) The crucial individual is also a player in a drama (whose "unities" are ecological). He has a "part" in this sense and is therefore reinforced by applause, prestige, etc. Consider here the individuals who contrive to be the "power behind the scene" (an interesting mixed metaphor which shows that the theatric component of the crucial status is not lost upon those who covet such status).

15. Note that the reinforcements and/or perquisites of crucial eco-status are, perhaps all, only messages which partly validate that status. Or—— more precisely—— validate the label of that status. "I'd rather be right than be a millionaire", but being a millionaire or being honored by fame and applause is surely a strong evidence and validation of my eco-label as crucial to (and in a strange sense "loved by") the system. It is the endless and insatiable hunger for this validation of what is after all only a limited truth—— it is this insatiability that creates a runaway. The lie that "power" could be absolute and that comparison of "power" could be transitive—— this metaphoric lie sets the stage for the maximizing of "power".

But the actor has only a part in the play; the tiger is only a part of the forest.

16. Note that the criterion which most sharply divides the metaphor of "power" from the ecologic metaphor, "part of" or "part in", is precisely contained in the matter of transitivity. All mammalian needs are for optima. An optimum amount of protein, oxygen, sex, warmth, entertainment, water, air, etc., is what is "good". And all these goods become toxic beyond the optimum. If some X is good, then more X is not necessarily better.

The metaphor of power derived from physics or engineering suggests that more power will always be more powerful. But this is an anti-biological, anti-ecological view of the matter—— an untrue view.

Money and population are the only contexts for maximization. (And money is certainly anti-ecologic.)

17. Consider problems of irreversible change. The man who drew the first plan which defined the "avenue blocks" of New York as long, and the "street blocks" as short, committed later generations (how many?) to an awkward problem in transportation.

But more interesting are "points of no return" in the processes of ecological change. I understand from the "power Broker" that Moses committed a great number of irreversible errors of the first type and that the aggregate of these errors is a possible determinant of the "democratic" trend which would prevent the rise of similar crucial individuals——

So—— having thrown away our only conventional tool for thinking about "power"—— what next?

In other words, the social changes which give rise to our conference—— that change from the possibility of people like R. Moses to the impossibility of such people or roles—— that change is perhaps partly a corrective change in mythology—— the partial discarding of a false metaphor. A good riddance.

•

Bateson on poets laureate: **You've got to have a poet around to write ballads when they bomb Pearl Harbor out of existence.**

"They were dirty sneaks
and since they came it's been three weeks . . ."

Reading Suggested by Gregory Bateson

Ashby, W. Ross. **Introduction to Cybernetics; Design for a Brain.**
Attneave, Fred. **Applications of Information Theory to Psychology.**
Bateson, Mary Catherine. **Our Own Metaphor.**
Bateson, Gregory. **Naven; Balinese Character; Perceval's Narrative** (ed.); **Steps to an Ecology of Mind.**
Belo, Jane. **Traditional Balinese Culture; Trance in Bali.**
Benedict, Ruth. **The Chrysanthemum and the Sword; The Anthropologist at Work** (ed. Margaret Mead).
Blake, William. **Songs of Innocence and Experience; The Marriage of Heaven and Hell.**
Butler, Samuel. **Notebooks of Samuel Butler** (ed. Festing-Jones); **Erewhon; Life and Habit.**
Carroll, Lewis. **Alice in Wonderland; Through the Looking Glass.**
Castaneda, Carlos. **Journey to Ixtlan.**
Collingwood, R. G. **Autobiography; Principles of Art; The Idea of Nature, The Idea of History.**
Courant. **Introduction to Mathematics.**
Craik. **The Nature of Explanation.**
Darling, Fraser. **A Herd of Red Deer.**
Dinesen, Isak. **Seven Gothic Tales; Last Tales; Out of Africa.**
Eliot, Thomas Stearns. **Four Quartets.**
Erickson, Milton H. **Advanced Techniques of Hypnosis and Therapy.**
Erikson, Eric H. **Childhood and Society.**
Frye, Northrop. **Fearful Symmetry.**
Gosse, Edmund. **Father and Son.**
Green, Hannah. **I Never Promised You a Rose Garden.**
Greenberg, Joanne. **In This Sign; The King's Persons.**
Harrison, Jane. **Themis.**
Herrigel, Eugen. **Zen in the Art of Archery.**
Hilbert, D., and Cohn-Vossen, S. **Geometry and the Imagination.**
Kesey, Ken. **One Flew Over the Cuckoo's Nest.**
Keys, James. **Only Two Can Play This Game.**
Lamarck. **Philosophie Zoologique.**
Lorenz, Konrad. **King Solomon's Ring; On Aggression.**
Lovejoy, Arthur O. **The Great Chain of Being.**
Macy Foundation. **Conference on Cybernetics** (5 volumes, Sixth to Tenth Conferences); **Conference on Group Processes** (ed. Schaffner).
Madariaga. **Englishmen, Frenchmen, and Spaniards** (1921. Published by League of Nations.)
McCulloch, Warren. **Embodiments of Mind.**
McKay, Donald M. **Information, Mechanisms and Meaning.**
Mead and Metraux. **Study of Culture at a Distance.**
Merrell-Wolff, Franklin. **Pathways through to Space; Consciousness Without an Object.**
Miller, Galanter, and Pribram. **Plans and the Structure of Behavior.**
Newman, J. R. **The World of Mathematics** (articles on Group Theory, Godel's Proof, and others).
Pribram, Karl. **Languages of the Brain.**
Ruesch, Jurgen, and Gregory Bateson. **Communication: The Social Matrix of Psychiatry.**
Schroedinger. **What Is Life?**
Shannon and Weaver. **The Mathematical Theory of Communication.**
Slater, Philip. **Earthwalk.**
Spencer Brown, G. **Laws of Form.**
Von Neumann and Morgenstern. **Theory of Games and Economic Behavior.**
West, Rebecca. **Black Lamb and Grey Falcon; The Birds Fall Down.**
Weyl, Hermann. **Philosophy of Mathematics and Natural Science.**
Whitehead and Russell. **Principia Mathematica.**
Whorf, Benjamin. **Four Papers in Metalinguistics.**
Wiener, Norbert. **Cybernetics.**
Wittgenstein, Ludwig. **Tractatus Logicophilosophicus; Philosophical Investigations.**

Anonymous, 14th Century. **The Cloud of Unknowing.**
Barnes, Djuna. **Nightwood.**
Gregory, R. L. **Eye and Brain.**
Townsend Warner, Sylvia. **Lolly Willowes.**

Social Change

Cybernetics cultists—— I'm one—— will enjoy the ruminations by gentry such as Gregory Bateson, Frank Gillette, Ivan Illich, Edmund Carpenter, Stanley Krippner, etc. that appear in this spare little journal.

—SB

Social Change
Victor Gioscia,
Philip Slater, eds.
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One of the characteristic methods which you have been taught is that science consists in collecting some facts, whatever they are, making a hypothesis, making them a prediction from the hypothesis and taking that prediction back to the facts. I would maintain that this is mostly nonsense. And it is nonsense of a particular kind, namely that kind which Moliere has stigmatized as the creation of *dormative principles.*

Let's say the problem is a Ph.D. examination in which the learned doctors ask the candidate, "why does opium put people to sleep." And the candidate, in dreadful Latin, replies, "Because, learned doctors, it contains a dormative principle", whereupon they all cheer and say, "How right he is." Now about three quarters of all the hypotheses in the behavioral sciences are fundamentally dormative principles. "Anxiety" is a dormative principle. "Emotion" is a dormative word.

—Bateson

•

I wondered about the best way to give you a feel of what a network is about. Gene Morong, of New York, and myself, made a definition of a social network: it is that group of persons who maintain an ongoing significance to each other's lives in terms of meeting basic human needs. A network is different from a group: a group has boundaries and a common ideology: a network, on the other hand, is more like a web, a kind of sociometric design. As far as I'm concerned, a network is more *real* than say, a community. A social network, although shadowy and vague, is really *there.* It's the next layer—— like an onion skin—— surrounding and inclusive of the family. Just as I believe individual human beings get scapegoated by their families, so families get scapegoated by the next social levels around them. So that, in intervening in a network, you're intervening at a higher level, at something like a metalevel. . . . I've found that network size is pretty constant within certain cultural groups or socio-economic levels, even though there are diverse kinds of networks. For instance, middle class or lower middle class "schizophrenic" persons, who haven't been in hospitals for ten years on the back wards, have a better chance, because you see, hospitalization strips networks away. As far as I'm concerned, that is actually why you have the "chronic hospital syndrome," which you *only* find in the hospital, in the back wards.

—Ross Speck, M.D.

Crowded chameleon mirror

And a note for Stewart: If you're serious, for Chrissakes get a chameleon and a mirror and find out. If you can find a bunch of them, see what they do when all they see is each other.

Lee Bonnifield
Durham, North Carolina

That's a whole new question, probably better defining the human condition than our original, "What color is a chameleon on a mirror?"

The way I would set up the experiment is tether the chameleon on a flat mirror, with a parabolic mirror (and light source) focussed over him like a cap, enclosing him in total mirror.

—SB

CoEvolution is as close as the sound of your voice

—Is a Co-Evolution where I discover the Whole Earth Catalog and it produces significant alterations of my thought patterns to the point where I suggest Epilog listings and have one accepted, thus altering the shape of the Epilog?

Bruce M. Umbarger
Lansing, Michigan

—Yes.

—SB

CoEvolution: The Woodpecker and the Hickory Fly

The hickory fly only lays its eggs on hickory trees, favoring the Shagbark hickory. Its egg is deposited in the immature hickory nut, and the larva develops in the ripe nut using its meat as a food supply. Various species of woodpecker gather only infected nuts and tuck them into crannies in the hickory bark (again favoring the Shagbark). At a later date, after the larve has developed to full size, the woodpecker drills open the nut and eats the worm he has put aside to fatten up. Apparently, the woodpecker judges the quality of the worm by the sounds it makes. A certain percentage of the larva mature and pupate before the bird gets back to them.

Thus, in feeding itself, the woodpecker assures that the emerging hickory fly will find a suitable host. The fly has evolved to the point that without the transportation provided by the bird, it would most often not reach the favored hickory tree. The fly flourishes, the woodpeckers get fat, and even the hickory tree profits since the woodpeckers clean it of harmful insects while waiting for their worms to ripen.

Charles E. Aylworth
Bedford, Indiana

Sum of the parts

According to Victor E. Shelford's **The Ecology of North America** (1963, $10.00, University of Illinois Press), 10 square miles of a Tulip Poplar-Oak forest like the one that once covered Kentucky contained the following:

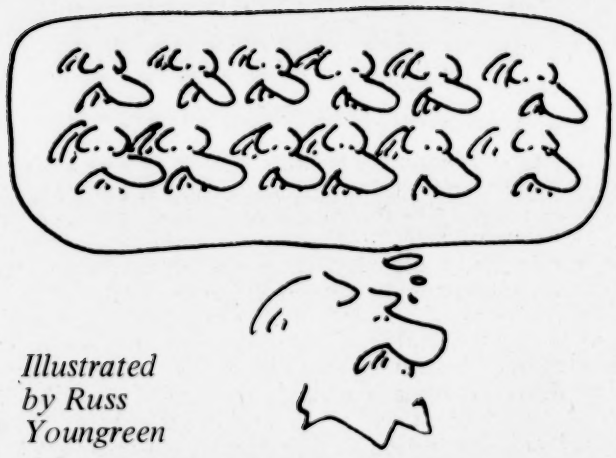
750,000 trees
786,000 saplings (1 per tree)
2,810,000 shrubs (3.7 per tree)
230-460,000,000 flowers & weeds (300-600 per tree)

In the sixty days of early summer when birds are breeding:
26,880,000,000 invertebrates (mainly insects & spiders)
7,680 pairs of small nesting birds (1 pr. per 90-95 trees)
160-320,000 white footed mice
10-20,000 (grey & fox) squirrels
200 turkeys
400 white tailed deer
? elk
? bison
horned owl
20-50 barred owl
red tailed hawk
red shouldered hawk
30 foxes
5 mountain lions, bobcats, & grey wolves (eating 100 deer/yr)
& 5 black bears.

[Sent by Tom Gage, Whole Earth Truck Store]

this superfluity of naughtiness

BY WARREN S. McCULLOCH



Illustrated by Russ Youngreen

The late Warren McCulloch is one of the three or four most central figures in the invention of cybernetics. This paper, one of his last, was prepared for a Wenner Gren Symposium on "The Moral and Esthetic Structure of Human Adaptation", July, 1969. It appeared in honorary reprint in a book called **Communication: Ethical and Moral Issues** *(EPILOG, p. 676). I'm carrying it here in part for its usage of original language and thought, where every phrase contains news.*

The fullest collection of McCulloch may be found in his **Embodiments of Mind** *(CATALOG, p. 316).*

–SB

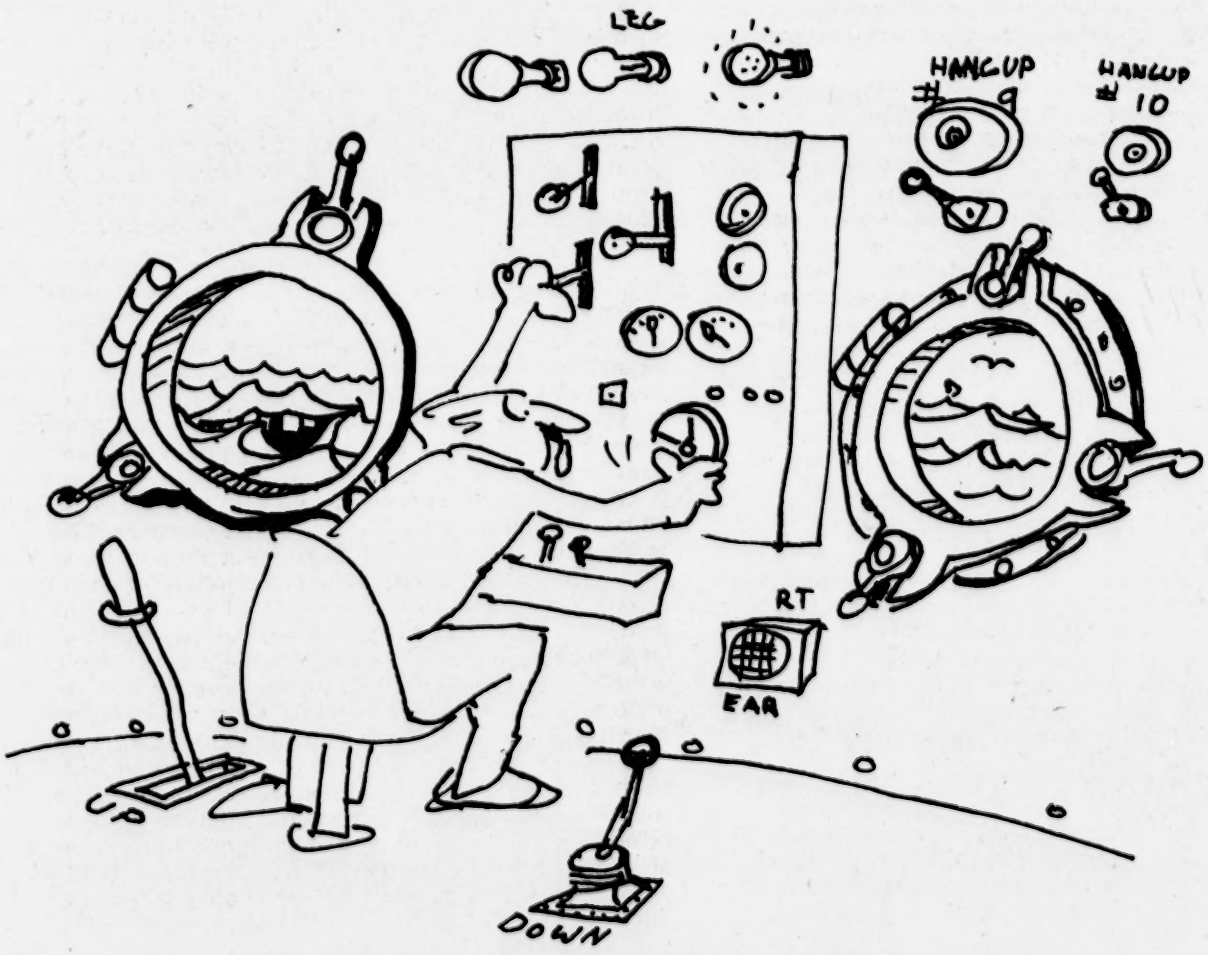
Twenty years ago, I was in Paris where the Cartesian mentality and the requirements of the French language preclude the paradox called the Mind-Body problem. There I met Russell, Lord Brain, who warned me that when I reached England I should make it clear that I was a neutral monist. He was so right. The first question to me at the Anglo-American meeting on the physical treatment of mental disease was "Are you a monist or a dualist?" Answer–– "Monist." "Are you a materialist or a mentalist?" Answer–– "Neutral." After that, they left me strictly alone as they did Norbert Wiener, whose soul they could not save. Before I left England I realized that they confused "mentality" with "mind," "spirit," and "soul," as if they all meant some sort of ghost to be given up at death. This makes it the more difficult to understand what they mean by saying that two men may be of one mind, and one comes to sympathize with their great neurophysiologist, Sir Charles Sherrington, who wrote "In this world Mind goes more ghostly than a ghost." His "this world" was not only "this England," but the world of physics, as ontologically inadequate for biology as it is for engineering; for both require values and meanings in the world–– not merely in the observer. We must distinguish work from energy, signal from noise, truth from falsehood, and good from bad. The basic relations are always at least triadic; thus, something is good for some one to some end, and often only at some time and under certain circumstances. Unfortunately, we can say it is useful, informative, pure or good, as if it were just adjectival to that it.

Again, our mother tongue misleads us concerning matter, which begins as some palpable stuff out of which something is made. Its familiar physical states are solid, liquid, and gas, its unfamiliar, plasma. It is then also matter for thought, its subject or its cause. Matter is copy for the printer, business for the state, and topic of debate for the Senate. In short, it is anything that matters to us, anything of importance or significance; for it embodies the stubbornness of fact. But it will not do to dismiss them both with the English saw, "What is Matter? Never Mind!" I am disenchanted with its spell and am enamored of Humpty Dumpty and his wool and water, and I have decided to hire Minding and Mattering to carry my meanings, for which services I will pay them well in kind tonight. Like Tweedle Dum and Tweedle Dee they go about arm in arm or engage in battle; for we mind most what matters most, and that matters most to us which we mind most. In fact, they are two aspects of one process: Neither materialist nor mentalist can challenge its existence. The process is causal: It is circular: Information is of its essence. Cybernetics was created for such processes. We will use it. But part of it is certainly embodied in a living being. So, for clarity, we shall include one and, for simplicity, pick on me; not because I'm different from you, but because of me I know things I don't know of you, just because I'm this one.

About you and about my first and earliest years I have only hearsay. Somehow, I must have learned to spot things like my toes and fingers, my ears, nose and mouth, and so to

recognize myself among the things I spotted. I was what bounced, crawled, wiggled and giggled. Mine were the toys that I could move, mine the people who came when I called and did what I wanted. All else was it. It went by a will or law of its own, and I knew it because it went agin' me. That made it real. Good may be nebulous: Bad is Real.

Now here I stand, speaking of "I," "me," "mine." I pointing at me-- myself. You and I are both aware of me pointing at myself. We can both bear witness to it. Legally, forensically, medically, we are conscious of me pointing at myself. If you were not there I might be aware of myself, as I often am in a dream, but legally "conscious" requires "with whom?" as well as "of what," for it is a social construct, not something in a head, not a ghost of mind stuff. I have portholes open on the ocean around me and pickups of signals within me from muscles, joints, and from accelerometers in my head, my vestibule, of which to make a model of my world and of me in it. As Craik noted, we update our models every tenth of a second for position, every two tenths for velocity and every three tenths for acceleration as long as we are awake. My model has lively dancing smells, shapes, hues, tastes, and textures for me and only me. The best I can do is to talk to you about my model. There are parts of it where it is incomplete and it may be wrong. So may yours. In real dialogue each of us may help the other. MacKay has said this most clearly. Given good will, humility, and a modicum of wit, it should not be impossible. MacKay's definition of meaning is most helpful. He says that it is the selectives function of the signal received on the transition probabilities of the behavior (overt or covert) of the receiver. Surely this is what the sender desired or he would not have spoken. For this the words we usually need have meanings based on our conscious use of them for experiences men have had in common. Once so established, they evoke in us recollections



of the roles they formerly played and so affect our models of our world. Thus when I speak of a green swan you will understand me because we have both associated the word "green" with green things seen and the word "swan" with

swans seen; consequently you will change your model of swans or of me. But please look out for another trap of language. It does not follow that because you know what things are green to me that you know what green is to me. That is because green for me is that ineffable quality of that relation that green things have to me, and the word "green" is shorthand for that relation. That quality green for me is ineffable because I have substantial knowledge of me and only me as you have of you and only you. The ineffability of green is of no great importance because we are conscious of green things in the public world out there. The great trouble comes when we would convey feelings, for they are not out there in the common world but in here in the private world, our model of our selves in our respective worlds. To feel cold, hot, tired, thirsty, hungry, tense, or anxious, these I can not share with you so that you can bear witness with me about them. You cannot know, and I can not tell you, what my feelings are to me, for they are just the quality of the relations of the momentary me to my enduring self. But we are enough alike for you, under certain circumstances, to feel as you would if you were me. If you guess right then you sympathize with me, but remember it is a guess and my very next act may surprise you. You may have been wrong as to what mattered to me. What matters to me makes me feel my self altered by it. We phrase this commonly, "I am affected by it." Or, you may have been wrong as to how I minded it, for I am one of those who when angry cries, from which my young friends learned the hard way to take to their heels. Rage and its tantrums, grief and its tears once started in us are hard to stop even when other deeds are urgent. Giggles and laughter are their own causes. Our emotions are sufficiently out of our control to make us feel we suffer, or at best tolerate them. It is only when we are completely bested by one of them that we and it are one. Then we are possessed. This comes to women in childbirth and to men in battle and to both in coitus. The distinction between "me" and "the other" vanishes as truly as in the agnosia, the true mystic experience. So much for our feelings, affections, and emotions! They are ongoing activities, varieties of our circular minding and mattering. If one could look inside me at any moment he would see things moving!

But we extend these notions to sentiments like love and hate. "I love my son" does not mean that anything is going on in me at this moment, but that I shall be affected by his fortune, be it good or bad. We do have sentiments and we often speak of our minding or of something mattering to us when the relation is only a sentiment, not a process. It would be better to say "I would mind if" or "It would matter to me if."

The Latin distinguishes among (1) a herd, i.e., those driven together, as cattle by cowboys, (2) a flock, those who go together toward a common goal as crows to a cornfield, and (3) a group of those who share. The last alone form a base for society. Whether it be a hive of bees, a pack of wolves, or a clan of men, there is always a dependence upon sympathy and none would exist if all members were exactly alike. Enduring societies consist of somewhat dissimilar members with organized ways of feeling and thinking that are properly sentiments. I am happy to accept Domarus' somewhat scholastic definition of thinking as "An intentional activity in which the ideas intended are those of former intendings."* My point here is that thinking is an activity. Thoughts are essentially like sentiments and might be phrased "If so and so. . . , then I would think. . . ." So sentiments have been treated sometimes as thoughts, sometimes as affections, each falling short of their union into an organization about a subject of some sort. A system of sentiments yields custom, fashions, manners, morals, of which ethics in its widest sense is the science. The attempt to make it normative has always been farfetched, and its values have been vague, to say the least. "Religion," sanctity," "holiness," names for the sentiment that some thing is more important to us than we are to ourselves, bespeak an extension of the general love for the other that holds societies together, and I, for one, can only understand religions in the context of their societies (*cf.* "Horatio at the Bridge"). They rise and change and fall together but they never truly return, at least to this our world, and it were difficult to ask significantly which was cause and which effect; The long-lived Gods of our fathers do die with them. But let that wait awhile.

Our theme includes not merely ethics but also aesthetics. It concerns beauty, natural or the work of man, and extends from its perception to our laws of its existence, its essence. Clearly there is no reason why something beautiful may not also be good and true, but there is every reason why to be beautiful a thing must not be a simple satisfaction, like distilled water to a thirsty man. It must create the desires that it satisfies, as well as satisfy the desires that it creates. Its greatness depends on the strength of these desires, its universality on the breadth of their humanity, and its perfection on the precision with which it matches the former to the latter. To catch and hold a man's attention it must surprise, be novel, perhaps unique. These attributes depend on circumstances, for actually the relation between the object and the appreciator is so conditioned. No painting can be beautiful to a blind man or in the dark, and the greatest stanza ceases to be so on rapid and prolonged repetition. To me Pythagoras' proof of the incommensurability of the diagonal and the side of the square, which is one of the greatest novelties of mathematics, is true and good and extremely beautiful, as it was to G.H. Hardy. Its sensuous content is nil, its validity dependent only on the nature of integers, and its virtues, the teaching of that humility that opened the door from the rationals to the reals. It would not be beautiful, true, or good to the idiot or the inbecile. Now I strongly suspect that one reason it seems beautiful to me is that in the act of understanding it there was that joy that comes from the breakdown of the distinction between one's self and it which is akin to the oneness of love. There is always a trace of it in the pleasure we have in novel perception, and more in recognition of the unexpected. It becomes strongest in those aesthetic experiences in which one feels as he would if he were the object that feels beautiful to him. When the object is another mammal, this may be sympathy. When it is an artefact, say a statue or a character in a play or a sonata, one feels it in his muscles, and we call this feeling "empathy." Texture, spectable, and timbre, sensations from the outside, are more easily referred to the object, and, if sufficiently distinct, give it the individuality of a discernible—— a substance—— a one and a this. But a this-one, with whom we feel as if we were it, is surely one that can be loved or hated, and hating being the opposite of loving, is most like it. Such a this-one cannot be an indifferent item of some class. Hence the old Hebraic law, "Thou shalt not number people," which we instinctively extend to living things. My wife says "All that lives is holy." But there is no reason for limiting our sense of sanctity to living things. We habitually personify rivers, storms, the seasons, and the very dawn, for we feel how it would be to be them. For the Chinese poet a poem is such a moment stolen from eternity. Stretch the time and it becomes a saga. Freeze it and you have the brittle eternal verities of which only mathematics survives and evolves. Greek Gods formed out of chaos and old night, and later to be begotten, were enough like us to sympathize and to beget

the demigods. They could be loved and hated. In their world man was humanly at home, and they were at home in Greek society. Socrates died for his revolt against them. Plato replaced them with abstractions and tried to exclude the poets, fearing theopoesis. The Hebrew tribal God was pure spirit but one could confront him. In this tradition Christ was born, but his life, Hellenized or "Platonized" to an eternal divinity, drowned the Pantheon in the blood of the martyrs, freedmen and slaves. It was a hundred years or more before the establishment took over and created the Roman and the Byzantine churches, and more than a thousand years before the Church gave Europe a medieval unity reestablishing man's kinship with fellow man and with his world. War and peace came and went as between brothers and "pretty" cousins and helped to keep down the population. Explosions produced Crusades of those who had made war itself a game and of excess serfs and children led to slaughter by piedpiper monks with a love of Christ. But the establishment became rigid and its potentates acquisitive and corrupt at the very moment when the minds of thinking and measuring men were discovering the sphericity of the flat world and the imperfections of a heavenly body. Astronomy led the way with physics hard on its heels. Anima was thrown out of the celestial spheres, and the doctrine of natural places succumbed to gravitation. But the new "world" of physics contained neither truth nor value nor significance nor utility. Man, driven vis a tergo, the automaton, went ahead; and the ghost, mind, soul, spirit, stood idly by. So begins the history of naughtiness. Pascal was well aware of it. He felt estranged from a world so cold, vast, and empty, a mechanical monster devoid of anything with which he could have a fellow feeling.

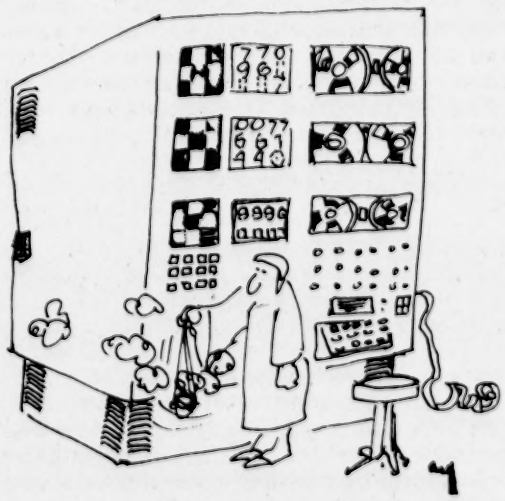
It were tedious to follow the history of das Nichts—— through Nietzsche, Kierkegaard, Sartre and their followers; or the revolt of the poets who would hear old Triton blow his wreathed horn.

What the industrial revolution, the Economic man, and our consequent wars and pogroms have had to do with the sense of homelessness and with our feeling that our fellow man is just a machine of death and destruction is hard to see, for we are too much a part of it. But one thing is certain, that it has become increasingly difficult to love one's friends and hate one's enemies.

That my generation of exploiters is inheritor and transmitter of this lovelessness, of frozen forms, of depersonalized contacts, of mass propaganda, of anything but human relations, there can be no doubt. The rebellion against all this nothingness was clear in our roaring twenties, but it was limited to a small fraction of that generation. We wrote poems, became left-wingers, crusading atheists, anarchists and communists, you name it, but all this died about the time of the depression when Hitlerism began to raise its ugly head above the Wandervögel. World War II was a war without a song, dirty business at best. It was rather a battle between machines than between men, and only an idiot really loves or hates a tank. Remember that a horse was a fellow creature! Perhaps war will die as it began with the horse. The plane is its heir apparent, and it may be that as it increases in size and remoteness of control it will lose our "Einfühlung." In any case, it will probably be replaced by ballistic missiles launched automatically with no man in the loop. As we approach this our computers have evolved to such complexity that we may now sit down with our enemy and say, "Let us compute," and only the programmers will have the fun! For the rest of us war will be as depersonalized as peace, income taxes, automated hospitals, banking by mail, etc. We shall all live in the smallest possible shoe boxes stretched sky-high. We shall never be introduced to the pig we eat, grow or grind our corn, or milk our cow: All will be automated. All will be truly naughty as far as our love of life and fellow creature is concerned. No one will have enough empathy with a turnip to have a green thumb, except for what will be again in our economic world—— irrelevant naughtiness. So much for the sentimentality of leisure. I see it most often in the neighboring slums in the weekend washing and polishing of new cars that are being purchased on the installment plan. This "wasting Christian kisses on a heathen idol's foot" is again a reaction to nothingness in an environment of asphalt and yards of broken bottles. We have been reduced to being mere spectators of a scene depicting nothingness. Our music is canned, our shows televised, our games played by few and watched by thousands. We have ceased to participate. Even the stockholders have ceased to attend their meetings.

When Nietzsche said "God is dead," it was not merely a statement of his opinion but was said hot, for he was theopoetic and gave us superman, to be superseded by batman and his ilk. Marx gave us the materialistic man who is what he eats, and Freud, the man who is an echo of his own depravity. Children may sympathize with batman, but no adolescent in his right mind can, nor does he want to be the bottled food he eats or the hangover from an imprisoned childhood. But he has little left by way of choice—— Naughtiness is all!

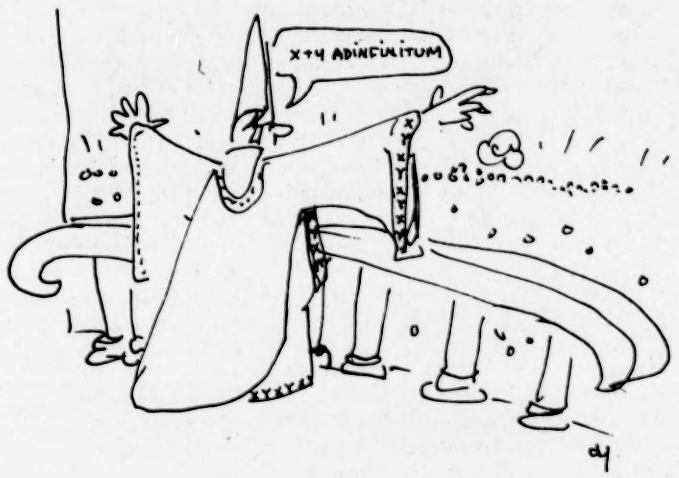
This brings me to our third theme, action or, more properly, to its base, motility, It is not enough to be mobile, and to be carried from place to place. One can be a passenger in the front seat of a car and never learn the road, and as Held has so beautifully demonstrated, a kitten that is merely toted about by its littermate never learns to see. If we do not move we cease to see; the image fixed in the retina fades fast. There is scarcely anything that a baby resents more than being confined in movement. The same goes for the small child whom we clamp into a wrong-sized chair at a wrong-sized desk in an ill-lighted room, staring at a blackboard. He is just the m^{th} seat in the N^{th} row, typically one of fifty or sixty, and it is not many months before the shades of the prison house have shut around him. The years go by: He escapes from grammar school only to be caught by high school and then the Draft or to sit again in college, all properly designed to prevent him from learning, from playing, or even working as anything but a Robotnic. But not all children are so destructible, and many survive with a first-hand knowledge of the trouble and sympathy for and a will to help their contemporaries. Both Robotnics and these, their would-be saviours, would see the establishment change. Their problem is one of design for action, for action there will be. Strictly speaking, their several actions are unconventional and unfashionable as of yesterday. The mores have changed. Our Lares and Penates are faced with actions and reactions by our offspring, seeking confrontation with the establishment. Through action they will learn. They are no longer content with Nothing in action or in sympathetic or empathetic relation to their world. For them our Gods are dead, as dead as the streets around them and the walls of their schools. Where can they seek life? To the impoverished it cannot come from introspection. Is there enough of nature left undespoiled? Must they find it in their relations to one another? Their dilemma is aesthetic and moral. So is ours. They and we must find something more important to us than ourselves—— devoid of myth and of anything supernatural, for one cannot sanctify Nothing. This requires of us that we conceive a church of a kind that is novel for us. The Buddha did it, atheistically and was deified. Lao Tzu did it and escaped deification of himself in favor of the "Way." Theopoesis is probably out, but the youth of most countries are looking for something for which to live with nature and their fellow man. A new religion is in order.



The question here is can it be inspired by science, which is the nearest thing to a religion a la mode? It is not the professional philosophers who are today in search of wisdom, but the scientist has, in a very definite sense, fallen in love with knowledge and truth, and his experiment is his prayer addressed to the existent concerning its essence. Only in mathematics or logic can there be hope for an eternal answer,

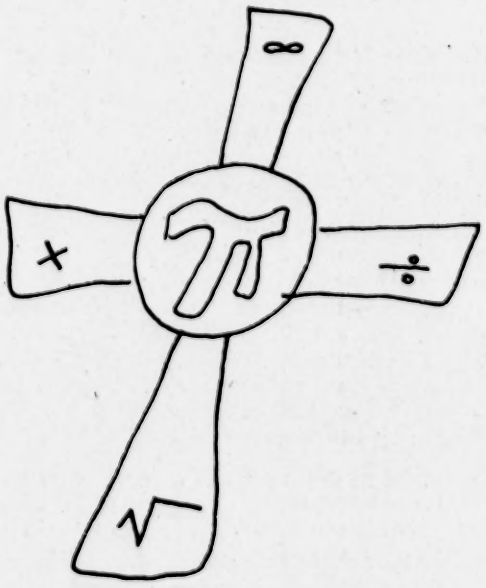
an incorruptible law that is binding on all occasions. Mathematics is a *lingua franca* for all who study it, and, being a language which we would enjoy without our angular gyrus, it has its inevitable structure to be adored by mathematicians.

Physics, particularly theoretical physics, is a runner-up. No man hath seen the electron, at any time, and in the atom it is not substantial, neither a one nor a this one. Particles other than barons play the role of angels. Anti-matter is a very fallen angel. Doubtless all this will proliferate into a new Scholasticism, with the accelerator in place of the Vatican. Humility to fact may replace humility to revelation. But it is not from this church that I expect an adequate religion, for it has excommunicated minding and mattering. It does lip service to mathematics but approximates an irrational by a ratio that will pass for it in practice, and the engineer follows suit. Biology is the most likely source of inspiration, provided it is not reduced to the Nothingbutery of biophysics. Biology as the science of all living things, including the virus and the brotherhood of man, is shot through and through with the requisite variety of ideas of which minding and mattering are not the least. Living things have evolved together and adjusted slowly to one another. They have basic similarities. I do not mean only the helix of their genetic coding or the few levorotary amino acids of which all of our proteins, plants, and animals, are constructed, nor the basic nature of the cell. They all compete for informed energy and elbow room in the *lebensraum* of the Wärmetod. Their similarity and the similarity of their goals make it possible for them to feel for each other sympathetically, without even knowing how they do so; and this is true of symbionts, and of predator and prey. The more alike we are, say mammals, the stronger the sympathy. Hence this science, with its wholesome anthropomorphic feeling to guide its experiments in forming simpler and natural hypotheses, is the natural basis for a biological religion, and, if we restrict ourselves to man, a human religion of a kind of new Taoism. This, I think, may be in the offing. The prayer of the biological scientist is still in his experiment asking for confirmation, or better, refutation of his hypothesis. But this is the esoteric side;



the exoteric may show up in education, politics, medicine, or conservation as a sort of pastoral theology. It is already making itself heard in the criminal court, where biological evidence can mitigate the action.

It is not to be confused with the morality of the Stoics or the ethics of the Epicureans, for the Stoic withdrew affection and the Epicurean withheld commitment; whereas what is coming at its best is more of the means, for it is the intellectual partner of caring that we need in order to organize our sentiments. I doubt if this is new, and I suspect that this has been the chief stumbling block of all aging religions. I am not sure but that communism is not the last transmogrification of Judeo-Hellenic formulations, produced by a mere inversion of Hegelian dualism, balanced on billiard-ball physics, and therefore first cousin to psychoanalysis. That these led the toughest thinkers to a confrontation, not with the establishment, but with Nothingness, is the historic fact. I do not mean that the everlasting life, or the paternalistic God-run world was lost as it was to the Wobblies, while singing "You'll get pie in the sky when you die." In a certain sense mankind is growing up, not asking for aeternity, but merely mechanically to land on the moon. He wants no heavenly father and is putting as much distance as he can between his earthly one and himself. I think he expects to go out like a light when he is around 30, and is convinced that all of us over that age are dead and don't know it. He will certainly not listen to us, but that has been the fate of many generations. So I believe we are reduced to the role of spectators at the birth of a new religion. What ideas will



guide its formation and its organization will come from two sources: first, those that are now among us, and second, those that will come out of the process of motile learning, that is, out of the active participation of the oncoming generation in changing our climate of ideas. This is largely affected by the explosion of the informational sciences. Part of the Nothingness confronting youth is the end product of the industrial revolution, which depended on power and culminated in the atomic bomb and the rape of nature. What the informational revolution will bring is still at best an educated guess. I remember well how Norbert Wiener feared the dislocation of clerical intellects whom the computer will certainly displace. They and the punch card operator are as surely doomed as unskilled labor. The machine operator who retrains to keep up with the evolution of machines will have his counterpart in the programmer, and both will be happy in their mastery of willing slaves. It provides a give and take between the man and his devices that allows him to sense his dominion, like the captain of the ship, which to him is "She."

For whom, then, should we be concerned? Not for the scientist, for he has his religion. Not for the operator of matter-moving or information-processing machinery. The scientists have their atheistic religion and the operators have their place in society, called Man-Machine. There is no reason that the credo of the former and the ritual of the latter may not be wed. The biologist and the engineer are their able love children. They need but a ceremonial hyphen, Bio-Engineering, to legitimate them. In both, the problems of minding and mattering are central themes. For this union closes the loop, and together, if they be good, beautiful, and true, they spin out that natural jurisprudence, from which Cicero coined the word "moral."

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*Eilhard von Domarus "The Logical Structure of Mind," in L. Thayer (ed.), Communication: Theory and Research (Springfield, Ill.: C C Thomas, 1967).

CoEvolution within the cell

Mitochondria, those tiny energy factories in all our cells, turn out to be little separate creatures, and not a product of cellular evolution. They are the descendants of primitive prokaryocytes, probably some type of bacteria, that found their way into the ancestors of our eukaryotic cells. It was a good environment in which to live, so they stayed there. Mitochondria reproduce on their own, independently of the rest of the cell. They have their own individual sets of DNA and RNA. They are symbionts, without which we would not exist. Our basal bodies and centrioles and, no doubt, more of the parts of our cells are separate creatures as well. Plants are in the same boat. Their chloroplasts are visitors who, long, long ago, decided to stay, so to speak. None of us are individuals. We are all whole communities!

I got this coevolutionary game from a magical little book which I think everyone should read. **The Lives of a Cell**, by Lewis Thomas, is published by the Viking Press, and was first printed in 1974. And that is that.

Jesse Smith
Wallingford, Pennsylvania

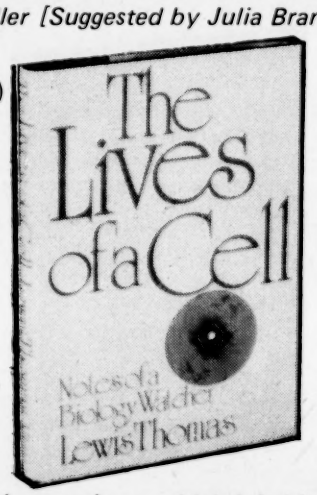
The Lives of a Cell

The Lives of a Cell *by Dr. Lewis Thomas is a fine selection of short essays on the complex interrelationships of the world. I was amazed to learn that such an enlightened man is actually the president of the prestigious Sloan-Kettering Cancer Center in New York and is read regularly in the "New England Journal of Medicine" from which these essays are taken (Maybe something will rub off on his peers?)*

Many excellent observations—— tempered with the right amount of biologically factual tid bits—— and salted with some thoughtful speculations. Biological Zen.

—Mark Miller [Suggested by Julia Brand]

The Lives of a Cell
(Notes of a Biology Watcher)
Lewis Thomas
1974; 153pp.
$6.95 postpaid
from:
The Viking Press, Inc.
625 Madison Avenue
New York, NY 10022
or Whole Earth



It is the protozoan *Myxotricha paradoxa*, which inhabits the inner reaches of the digestive tract of Australian termites. . . . At first glance, he appears to be an ordinary, motile protozoan, remarkable chiefly for the speed and directness with which he swims from place to place, engulfing fragments of wood finely chewed by his termite host. In the termite ecosystem, an arrangement of Byzantine complexity, he stands at the epicenter. . . . Without him there would be no termites, no farms of the fungi that are cultivated by the termites and will grow nowhere else, and no conversion of dead trees to loam.

The flagellae that beat in synchrony to propel myxotricha with such directness turn out, on closer scrutiny with the electron microscope, not to be flagellae at all. They are outsiders, in to help with the business: fully formed, perfect spirochetes that have attached themselves at regularly spaced intervals all over the surface of the protozoan.

Then there are oval organelles, embedded in the surface close to the point of attachment of the spirochetes, and other similar bodies drifting through the cytoplasm with the particles of still undigested wood. These, under high magnification, turn out to be bacteria, living in symbiosis with the spirochetes and the protozoan, probably contributing enzymes that break down cellulose.

The whole animal, or ecosystem, stuck for the time being halfway along in evolution, appears to be a model for the development of cells like our own.

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A very general system of chemical communication between living things of all kinds, plant and animal, has been termed "allelochemics" by Whittaker. Using one signal or another, each form of life announces its proximity to the others around it, setting limits on encroachment or spreading welcome to potential symbionts. The net effect is a coordinated mechanism for the regulation of rates of growth and occupations of territory. It is evidently designed for the homeostasis of the earth.

Jorge Borges, in his recent bestiary of mythical creatures, notes that the idea of round beasts was imagined by many specualtive minds, and Johannes Kepler once argued that the earth itself is such a being. In this immense organism, chemical signals might serve the function of global hormones, keeping balance and symmetry in the operation of various interrelated working parts, informing tissues in the vegetation of the Alps about the state of eels in the Sargasso Sea, by long, interminable relays of interconnected messages between all kinds of other creatures.

There is a place with four suns in the sky—— red, white, blue, and yellow; two of them are so close together that they touch, and star-stuff flows between them.

I know of a world with a million moons.

I know of a sun the size of the Earth—— and made of diamond.

There are atomic nuclei a few miles across which rotate thirty times a second.

There are tiny grains between the stars, with the size and atomic composition of bacteria.

There are stars leaving the Milky Way, and immense gas clouds falling into it.

There are turbulent plasmas writhing with X- and gamma-rays and mighty stellar explosions.

There are, perhaps, places which are outside our universe.

—CARL SAGAN

"WHERE!?"

We ran this provocative quote on the cover of the Fall 1970 Whole Earth Catalog, and Sagan re-used it in his recent* Cosmic Connection *(EPILOG, p. 457). This fall we phoned him at his home in Ithaca, NY, for details. Come on, where? Verbatim:

The place with four suns in the sky. . . four different colors. . . and in touch. . . Well, first of all, most of the stars in the sky are not lone stars like the Sun but are binary or multiple star systems. A fair fraction of binary stars are called "contact binaries", in which the gravitational attraction of the more master star pulls matter out of the less master star—— it flows from the donor to the receiver. Now, there are many cases where two binaries orbit each other. Two stars are revolving around a common center of mass. Another two stars are revolving around their center of mass, and the two centers of mass revolve around each other.

Now, as far as color goes, the Sun is a yellow dwarf. A highly evolved star, like the Sun will be in another five billion years or so, is called a red giant. A red giant usually winds up as a white dwarf. And a very hot star but still in middle age like the Sun is called a blue dwarf.

A world with a million moons . . . is Saturn. The Rings of Saturn are composed of snowballs which are certainly less than a meter across, perhaps ten centimeters across. There are millions of such snowballs making up the rings of Saturn.

A sun the size of the Earth and made of diamond . . . Many white dwarfs fit that description. Where hydrogen has been substantially lost they are crystals, stars which are crystals, and they're cold and cooling still more. So, for example, Sirius has a white dwarf companion. It was the first one discovered, but there are enormous numbers of such white dwarfs, many of which are made largely of carbon in crystal form. Therefore diamond is the correct description.

An atomic nucleus a mile across that rotates thirty times a second . . . is a neutron star, which is the end product of the evolution of a star more massive that the Sun. It becomes, not a white dwarf, but a neutron star. That is, it's composed entirely of nucleons—— the elementary particles which make up the nucleus of atoms. Therefore they are atomic nuclei. And a mile across is how dense the thing shrinks to before the nuclear forces between particles pull the thing up against subsequent gravitational collapse. And they're rotating thirty times a second because of the conservation of angular momen-

The Crab Nebula

tum. A star like the Sun spins once a month. When it contracts down to a mile across it's spinning something like thirty times a second. A specific example—— the one that rotates thirty times a second—— is the pulsar in the Crab Nebula, which is a neutron star.

OK, *Tiny grains between the stars with the size and atomic composition of bacteria* . . . Well, there's some absolutely tremendous number of them. If you take a look at a typical dark nebula, like say the Horsehead Nebula, the dark stuff is the kind of grains I'm talking about.

Hm, *Stars leaving the Milky Way* . . . *Gas clouds falling into the Milky Way* . . . Well, again it's quite common. We are a star which is in the plane, one of the spiral arms, of the Milky Way. But there are, for example, stars of a sort called "M dwarfs" which are oscillating out of the plane of the Milky Way—— they spend most of their time out of it.

OK, *Turbulent plasmas writhing with X- and gamma-rays and mighty stellar explosions*. . . Again, the Crab Nebula. Not the star in the center of it, but the nebula itself, is a good example of this.

Places outside our universe . . . Is a black hole. The nearest object which is thought by many astronomers to be a black hole is Cygnus X 1. I like to think of a black hole as a place where the gravity is so great that the fabric of space has become puckered—— isolated from the rest of space so that light can't get out of it.

"Does that do it?" he asked.

"Perfectly," said we. "Another question: What have you read that electrified you lately?" Sagan pondered, "Well I'll tell you, the detective fiction of John D. MacDonald I find very interesting in terms of perception of character. Just for kicks it's far above Agatha Christie. . . Um, I've just reread **The Odyssey.** *It's a good book. A lot of it takes place in Ithaca." "Which translation?" "Samuel Butler."*

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Vital Answers

In the Summer **CQ** *and in the EPILOG, we asked the readership the Vital Question:*

> Where are the Earth's erogenous zones?

Hot springs, friends informed us in conversation; uh, volcanoes; those big tides sliding in and out the Bay of Fundy. Then the mail started. Here's some.

I enclose a clipping from last Sunday's New York **Times** *front page. I feel the article has great bearing on your "vital question". A preliminary reading seems to indicate that the Kverkfjol volcano is really fucking the space between Europe and North America in the North Atlantic.*

—Ed Rosenfeld
New York, New York

Carlsbad Caverns. There isn't a formation in there that doesn't look like a penis or a vagina. The irony being that it's almost totally sterile. Maybe a symbol of eros for the post-procreative generation?

—Stephanie Mills
Atlanta, Georgia

The Earth's erogenous zones are everywhere, but only responsive to a loving touch.

—Richard

Dear Vital,

Earth is pansexual (he/she/it) and polymorphously perverse. Ergo: it has no specifically erogenous zones; it's horny all over. Fondle its rocks, touch its Tetons, dick around in the Grand Canyon, go way down upon the Swanee River, or kiss its ice at the South Pole—— it's all one to the Sensuous Sphere.

Earth aches for attention (Hell hath no fury like a planet scorned). Anything goes—— anywhere, any time. Look, listen, touch, taste, smell—— but gently. Rape is the only sin you can commit against a willing partner.

—Dick Welsh
Scottsdale, Arizona

In the Bermuda Triangle

—Bookshop Santa Cruz

Earth's erogenous zones? I am sometimes & my wife usually.

—Kud
Radium Springs, New Mexico

Address for answers: Vital Question, Box 428, Sausalito, CA 94965

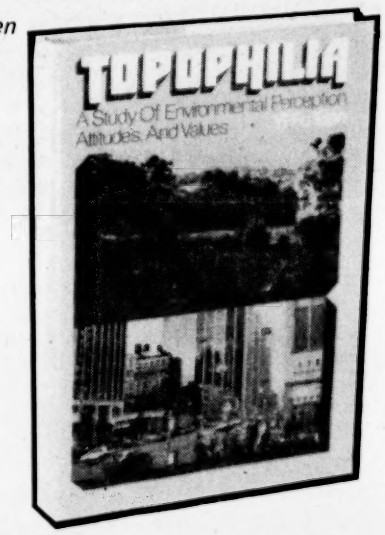
Land Use

Topophilia

Topophilia *is a readable book on a nebulous subject. The word means love of place. The format is a cultural and historical survey, with as much consideration for myths and metaphors as for geography and sociology. The historical perspective is refreshing if only because it demonstrates that not all the problems we face today are unique. People either take for granted or don't try to verbalize most of what this book is about. Thinking about it can change the way you see your own environment.*

—Richard Nilsen

Topophilia
(A Study of Environmental Perception, Attitudes, and Values)
Yi-Fu Tuan
1974; 260pp.
$4.95 (ppbk.) postpaid from:
Prentice-Hall Inc.
Englewood Cliffs, NJ
or Whole Earth



The dominant myths of America are nonurban. They are often anti-urban: the image of paradisiac New World stands against the image of European sophistication and corruption. A later date saw the development of antinomic values within the New World itself, contrasting a virile, democratic West with an effete, autocratic, Mammon-worshipping East. The dominant spatial metaphors for American destiny, particularly in the nineteenth century, are the garden, the West, the frontier, and wilderness. The city, by contrast, stands for the world's temptations and iniquities. Beginning with Jefferson, the intellectuals, though they come largely from an urban background, have persistently enforced the agrarian myth to the detriment of the environment that nurtured their learning and elegance.

•

People rarely perceive the irony inherent in the idea of *preserving* the wilderness. "Wilderness" cannot be defined objectively: it is as much a state of the mind as a description of nature. By the time we can speak of preserving and protecting wilderness, it has already lost much of its meaning: for example, the Biblical meaning of awe and threat and the sense of a sublimity far greater than the world of man and unencompassable by him. "Wilderness" is now a symbol of the orderly processes of nature. As a state of the mind, true wilderness exists only in the great sprawling cities.

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To live, man must see some value in his world. The farmer is no exception. His life is harnessed to the great cycles of nature; it is rooted in the birth, growth, and death of living things; however hard, it boasts a seriousness that few other occupations can match. In fact, little is known about the farmer's attitudes to nature. What we have is a vast, largely sentimental literature on the farming life written by people with uncallused hands.

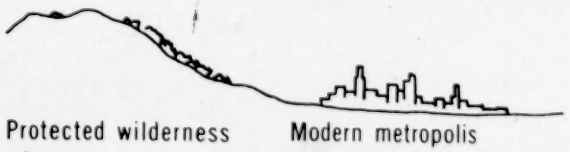
•

Much of modern sightseeing seems to be motivated by the desire to collect as many National Park stickers as possible. The camera is indispensable to the tourist, for with it he can prove to himself and to his neighbors that he has actually been to Crater Lake. A snapshot that failed to register is lamented as though the lake itself has been deprived of existence.

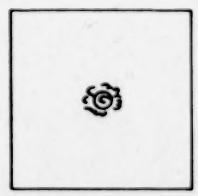
d. Wilderness - Paradise motif

Desert wilderness chaos (Domain of evil spirits) — Oasis - Garden city

Forest wilderness — Paradise: Monastery, University, Seminary, New Zion



Protected wilderness "Paradise" — Modern metropolis "Wilderness"



Paradise: The forecourts of basilicas and monastic cloisters with fountain flowing in four streams and surrounded by potted trees

"Taoist" Paradise
Inscription over moon gate (Ming dynasty) reads: "The Bamboo and the Path lead one to mystery"

Rock - and - sand garden
Zen garden of contemplation (Kyoto) ca. 1500

Kale

Anyone who doesn't like spinach will hate kale-- chewier, even better for you, it's also easier to grow. Six to twelve mature plants are adequate for a family. Harvest the outer leaves-- but never all from one plant-- so the plants will keep growing through the winter. For very severe winters, mulch plants well with straw.

"In older times, kale was called "The Green Doctor" because the people who ate it were so healthy. There is a story told about an older physician giving advice to a young doctor about how to search for a town where he would set up his new practice. The older physician advised the young man to look over the back yard gardens of his prospective patients and, if he observed much kale growing there, to go on to another town because the people would be too healthy to need his help."

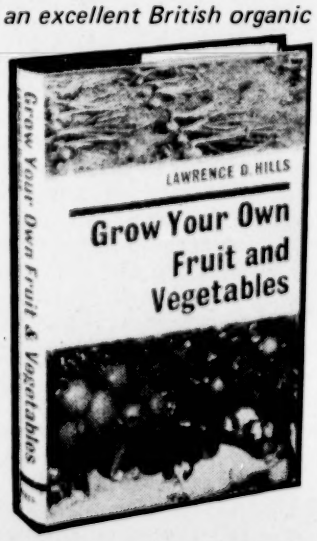
Quotation from:

The Pfeiffer Garden Book
(Bio-Dynamics in the Home Garden)
1967; 199pp.
$3.85 postpaid
from:
Biochemical Laboratory
Threefold Farm
Spring Valley, NY 10977
or Whole Earth

[Reviewed in CATALOG, p. 53]

Here is an excerpt on kale from an excellent British organic gardening book.

Grow Your Own Fruit and Vegetables
Lawrence D. Hills
1974; 315pp.
$9.50 postpaid
from:
Transatlantic Arts, Inc.
Trade Dept.
North Village Green
Levittown
Long Island, NY 11756
or Whole Earth



There are two kinds of kale and both are perhaps the best bargains of all of any leafy vegetable for growing the most winter vitamins on the smallest space for the least trouble. They are hardy through the toughest winters, clubroot-resistant, unattractive to pigeons and easy for everyone. If only they were just a little more palatable they would be the perfect vegetable. . . .

The Rape Kales are descended from the wild *Brassica campestris*, the ancestor of our turnips and swedes. . . . Rape kales hate rich feeding as much as they do transplanting, for this makes them too tall and soft to stand up to wind and frost, so they should follow crops that had manure, though they appreciate generous liming. . . .

The other group of kales is often catalogued as "Borecole", and is nearest to the original wild cabbage to the mutations of which through the ages we owe brussels sprouts, broccoli and cauliflowers as well. This is *Brassica olearacea* and the original species still survives on the Muldornich, a rocky islet off Barra in the Outer Hebrides, which has never been colonized by rabbits, and the sheep cannot reach it on the cliff ledges. . . .

The kale that shares with whisky the right to be called 'Scotch' by Scotsmen has a vitamin A content that can be equal to that of a carrot, and apart from . . . Broccoli . . . both types have more vitamin E than any other vegetable. Kale has 8 mg. per 100 grams compared with 1.5 for carrots,

Richard Nilsen and kale forest

2.6 for celery, 1.9 for leeks and 6 for fresh peas. Wheat germ (with 27) and the grain oils hold more, but kale is the only form in which we can grow our own share of this very important anti-arthritic vitamin that is essential to the health of our muscles.

The kales are among the leafy vegetables that contain vitamin K and are a better vegetable source than cabbage, cauliflower or tomatoes and rather better than spinach, rating higher than soya bean oil, egg-yolk and liver. Vitamin K is extremely valuable in helping the blood to clot, and those whose livers are defective need more of it. Little is known of it, and it is a 'trace vitamin' needed in small quantities, but kale is the best source so far identified and this could well be important in the future.

In the nineteenth century there were a group of Scottish novelists, including S. R. Crockett and Ian Maclaren, known as 'The Kaleyard School' because they wrote of humble crofters, for kale, which won for Scots gardens the name of 'kailyards' was all-important to them. The original 'Scotch Kale' may well have been developed from the wild cabbage of the Hebrides by the clansmen of the past, or more likely by their gardening, hen-tending, spinning and tartan-weaving wives.

It stood the climate, grew with little trouble, and would thrive for years without clubroot in the isolation of the 'in-by', a tiny field enclosed by stone walling to keep out the sheep. Kale provided the vitamin C to ward off scurvy through long Highland winters, and the vitamin A missing from a diet of oatmeal porridge (oats have only 2 mg. per 100 grams of vitamin E); 'brose', which was mutton broth with the oats that provided the main filling for haggis; salt herrings and fresh fish. It was cooked in a kind of thick soup, and because it is so rich in these vitamins, enough were left after even long simmering over the peat fires. Those who have seen the crowding ruined homes among the lofty bracken in the empty islands will give the kale due credit for balancing the diet that has made Scotsmen Scotland's finest export all through her history.

Kale can be used in salads or cooked as greens. This recipe for a super-easy and elegant kale soup was suggested by Carol Polk.

1-2 lbs. fresh kale
3½-4 c. chicken broth
1 onion, chopped
2 T. butter, 1 t. salt, ½ t. curry, dash pepper

Cook the above 8-12 minutes till tender. Blend in blender. Stir in some lime juice. Serve hot or cold with sour cream on top.

—RN & RM

Definitive Poultry Letter

Gentlefolk, . . .

We have some experience with raising poultry, and we thought that people who have a little bit of land might be interested in the stuff below. We had two ends in mind in putting this information together: first, we'd like to suggest that having a few birds around the farm or cabin can be just an awfully useful thing. In addition to turning insects and weed seeds into usable egg and meat protein, they can serve as sentries, ornaments, weeders, a cash crop, and a hobby. Second, we hope that the information below will give interested people some basis for making decisions about different kinds of fowl with respect to their particular assets and liabilities. We haven't given much detailed information, but rather noted sources—— where available—— where such information can be found.

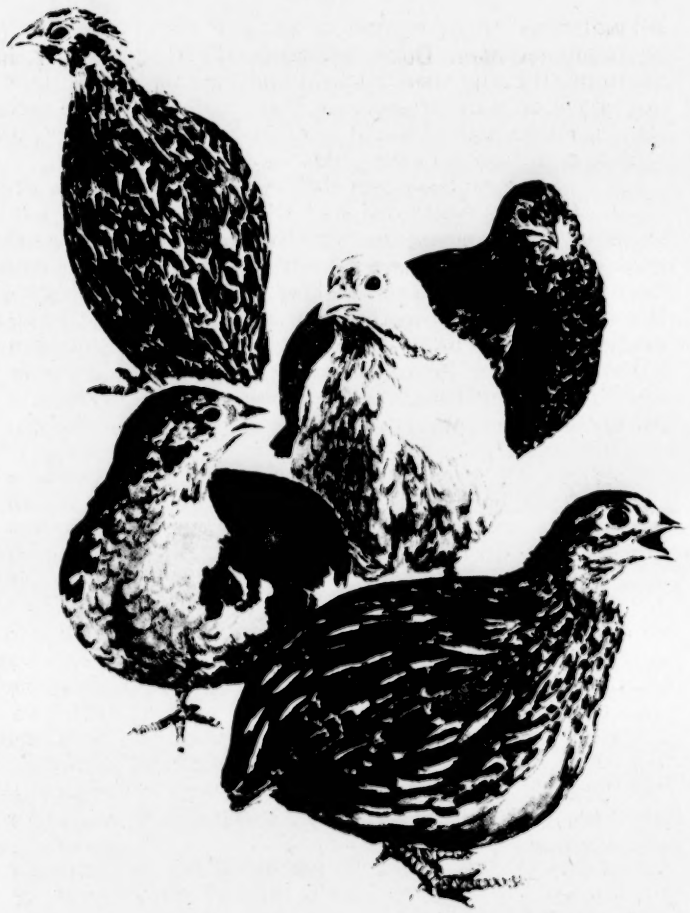
LAND FOWL

A) Chickens. Hardy and easy to raise. Chickens may be kept without coops in winter in the south but will require housing in northern winters. Regardless of weather, however, chickens are much more productive and easily managed when they have a coop. Chickens will return to a coop in the evening, and may be cooped permanently or just at night. They will forage for much of their own food and will stick around if you throw them some scraps of grain daily. Cheap. They eat a great many insects, are very available, and make great fully automatic incubators and brooders for young fowl of all sorts. Chickens are the most thoroughly-researched bird in the world. There are meat-producing strains, egg-laying strains, and "general purpose" birds. The best-laying strains produce up to 300 eggs per year in their prime, so don't buy too many at once.

On the other side of the ledger: chickens are somewhat disease prone. Chickens can really do a lot of damage in a garden ——particularly to new beds—— with their scratching and dusting, and they may pick at such things as tomatoes. Ours were messing up the garden badly enough that we began cooping them up until dinnertime and thus restricting their foraging period. Several billion are raised in the U.S. annually, and most broiler and egg production is done on a very large scale. Still, chickens are easy and useful birds to have about. Your Friendly Federal Government——the same folks who brought you Peace With Honor, The Great Society, and Affirmative Action—— will send you—— for a mere 20¢—— quite a thorough bulletin entitled "Farm Poultry Management" (number A1.9:2197/3) if you request it from: The Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. Use this address for all pamphlets mentioned below.

B) Guinea Fowl. Little known outside the south, only about one-quarter million guineas are produced annually—— chiefly in small flocks. Like chickens, they can be left to roam the whole year where it is not too cold. Indeed, guineas do not do too well in coops, for they are really quite wild. And it is this wildness which makes them the easiest of all fowl to raise. Guineas fly very well (relative to chickens), and range very far from home. They are much safer from predators than are chickens. But guineas are more than just non-union chickens. They are, in character and appearance, quite unique. Guineas are exotic-looking: something like a cross between a turkey vulture and a '53 Kaiser. They are so wild that it's very like having pheasants chasing about your yard. Moreover, guineas tend to be freer of disease than chickens. Guineas are much nicer to gardens than chickens, for they eat the bugs, but don't scratch and mess up your beds. Finally, they make very good intruder alarms. All of this for a few handfuls of corn.

So, why haven't you ever seen a guinea? Well . . . in order to keep guineas you ought to have—— at minimum—— a quarter-mile between you and your nearest neighbor. Unless, that is, your nearest neighbors happen to like loud, rude noises, for guineas have very loud voices and use them quite a lot. They roost in trees near the house at night and will scream at anything that moves, and they sound like a scat-singer on speed.



Breeds of Coturnix quail ($8/bird) from Marsh Farms Catalog of Bird & Aviary Equipment, Garden Grove, CA 92643

The flesh of guineas is very highly regarded; they are, perhaps, 2/3 the size of a chicken. They lay no more than 100 eggs a year; the eggs are about 2/3 the size of a chicken egg and are much prized for baking. They do not set nearly as well as chickens indoors and are usually not cooped at all. Try to get young guineas when starting a flock; older birds will have to be kept cooped up at your place for two weeks, or they will fly away. The pamphlet "Raising Guineafowl", #A1.35: 519/2, will tell you all about it, for 25¢.

C) Turkeys. At one time turkeys were fairly frequent in small farm flocks, but they are no longer. The 100 million turkeys that are produced annually are produced on large turkey ranches. Turkeys' only asset is their size. They produce few eggs, require housing and special feed and equipment, and are very disease- and accident-prone. Deciding to raise turkeys for food would probably be a mistake—— unless you're thinking of a pretty highly capitalized operation. If you want big birds, geese are much easier. The only turkeys that we have seen in small flocks have been kept for ornamental purposes. We've never had them. If you still want a turkey in your life, send 75¢ for pamphlet #A1.76:393, "Turkey Production".

D) Etc. Other sorts of fowl are occasionally raised both for food and for their appearance. Meat and egg markets do exist for quail and pheasant, but they are quite limited. The birds are, of course, much harder to raise than are domestic fowl. We have never had pigeons, but they appear to be another story. Squab markets are also very limited. Pigeons, however, look to be pretty easy to keep. About any old shed or corner of the garage could be fixed to serve as a dovecote. Pigeons—— along with bees—— would appear to be about the only free-ranging stock that one could keep in the suburbs. There is a tiny blurb on squab production in the generally useful 15¢ pamphlet, "Raising Livestock on Small Farms", #A1.9:2224/2. Get yourself a pigeon, turn cigarette butts into protein.

WATERFOWL

All waterfowl have a number of things in common that might be mentioned here. Ducks and geese will stand the cold and damp much better than chickens and their ilk, and require housing in only the cruelest weather. Both ducks and geese may be raised with surprisingly little water-- a child's plastic wading pool sunk into the ground will do. Geese, being grazers, need even less water than ducks. However, the economies of owning waterfowl are best realized when there is some natural water nearby. Finally, care should be taken in selecting the starting, growing, and laying feed for any waterfowl which you intend to hand feed. Most such feed prepared for chickens contains medication which is dangerous to waterfowl. The chief dangers are, we believe, arsenic-based vermifuges. In our area the unmedicated feed is called "commercial" feed, and be sure to get it if you intend to feed ducks or geese. Corn, of course, is O.K.

A) Ducks. All domestic ducks except for the Muscovy are derived from the wild Mallard. We'll be considering the Muscovy below. There are two important types of mallard-derived ducks: those bred for meat production and those bred for egg laying. Of the 11 million or so ducks raised annually in the U.S., virtually all are White Pekin ducks, raised for meat. These are raised primarily on large, Long Island farms. Ducks are somewhat harder to raise than chickens, and a good deal messier. They stand the cold better, and can go without housing almost anywhere, but they are quite vulnerable to predators when left outdoors at night unless they have access to a sufficiently large body of water. Pekins are virtually flightless. They may harm garden succulents in the course of capturing insects. Mallard-derived ducks take to water like . . . Wait'll you see your lawn after the ducks have mucked it over during a heavy rain-- you'll torpedo forever your chances of being selected as a site for a Budweiser ad. Other meat-producing mallard-based strains are Rouen, Call, Swedish, Cayuga, and Aylesbury.

We've never kept egg-producing ducks, but we suspect that most of the remarks above apply here as well. Khaki Campbell ducks are said to be the best layers, followed by Indian Runner ducks. There is a strain called Orpington which is touted as a multi-purpose, meat and egg producer. Egg producing ducks are little known in the U.S., and markets for duck eggs are very limited. Breeding stock could be difficult to find. You might try first locating some duck eggs and then tracing them to their source (ducks), or you might even take a gamble on their fertility, if they haven't been refrigerated, and try hatching them under a chicken. The one most notable thing about egg-laying ducks is their amazing rate of production. Khaki Campbell flocks have averaged 365 eggs per duck per year, and those are large eggs. Beats the very best chickens by 20% or more. Could be just the thing for a meatless family or commune-- particularly if you have natural water.

The one duck left to mention is the domestic Muscovy-- street version of the wild Muscovy of South America. Muscovies-- more commonly called "scovies" or "scovy ducks" in our area-- not being descended from mallards, have properties which make them particularly suitable for the small farm. They are quieter and less messy and require less water than do mallard-derived ducks. They are better setters and less prone to disease. They fly well, and this gives them both some safety from marauding animals and access to water some distance from your settlement. They lay only about 45 eggs per year and mature somewhat slowly. Patty raised about 80 scovies and Mallards this spring from an original breeding stock of 16 ducks, of which only 10 were females. Scovies are easier to raise than Mallards, easier even than geese. Pamphlet #A1.9:2215/2, "Raising Ducks"-- yours for 10¢.

B) Geese. Geese are somewhat easier to raise than mallard-derived ducks. Unlike ducks, they can forage very successfully on pasture with little supplement. They need less water than ducks, almost none in fact, but will be happier with it than without it. The heavier strains-- Embden and Toulouse -- are almost as large as turkeys and much easier to manage. They are noisy and, like guineas, good "watchdogs", raising all honking crawling hell at all interlopers. All fowl will kill small snakes, but large geese will kill them right on up into the adult copperhead range. We didn't believe it until we found an 18-inch non-poisonous snake with three right angles in it where our Canada geese had been feeding. Geese can do a mediocre to fair job of keeping a lawn clipped; Fertilize it pretty liberally, too, so watch your step. Obviously, too many birds of any sort right next to the house will give you The Lawn That Says Don't Tread on Me. Geese are sometimes used as weeders of crops such as cotton, corn, and strawberries, so the pamphlets say. Our geese hadn't read that, and really did a number on our newly planted strawberries and young corn shoots. Geese must be fenced out of the garden. They need housing only in the most severe winters. Fewer than a million geese are raised annually, many in small flocks.

On the other hand, geese are noisy and, during the nesting season, quite ill-tempered, whereas ducks are happily horny. Nobody eats goose eggs, though there is certainly nothing wrong with them. Their size gives them protection from smaller predators. Pamphlet #A1.9:2251 will give you the lowdown on "Raising Geese" for 25¢.

C) Other waterfowl are raised for ornamental purposes. These include certain ducks, geese, and all swans. Swans were once used as food but are no longer. They need much natural water.

Just a couple more things. Poultry keeping can be undertaken at many levels. At minimum, conditions permitting, it might involve nothing more than tossing the guineas or 'scovies a bit of scraps and corn every day. However, if you have a large number of people depending upon a supply or sale of meat and/or eggs, you're not likely to get by with such casual techniques-- particularly during the hatching season and where there are a great many predators. Egg production requires more secure housing and specialized feed (like laying mash) than does meat production. There is some necessary input of time and expense. Fortunately, however, most of your costs are not fixed, and it's probably possible to move easily back and forth between small-business and domestic phases of operation.

You can probably obtain most of these birds from local sources; national sources exist for a few of them. I would suggest that you try the former first. Not only is service much faster, you will, in addition, have a chance to meet some local people and learn how they do things. You may have to do some looking, especially for the more off-beat birds, but it is interesting looking, you'll find. First, call your county agricultural agent and see if he or his secretary knows anybody who has what you want. Also, ask at your local feed stores; they know who's feeding what. If this fails, get yourself a Sears & Roebuck "Farm and Suburban" catalog. Sears has almost everything: several kinds of chicks, guinea keets, goslings, and ducklings. The birds are available only as day-old infants, so you'll have some rearing to do. (If you're smart, you'll stick the young under a broody chicken hen one night and have her carry the biggest part of the rearing burden.) Also, these young birds are available only during the spring and summer months. We got some goslings from Sears; took'em about 2 months to fill our order, and the goslings arrived in perfect health.

Well, that's about it. Hope this is of some use to somebody. Stay loose, and mean, and unmutual.

—Tom and Patty Christ
Wright's Island
The Chickahominy River
Toane, Va

Heredity is nothing but stored environment.

—Burbank

Winemaking at Home

BY PHIL AND MIKE PALMER

Wines can be made from a great variety of produce. Legally speaking, wine results from the fermentation of grape juice. However, wines can also be made from many fruits, dandelions, certain flowers, rose hips, rhubarb and such. In Alaska wine is even made from milk.

The best dry table wines are made from freshly picked wine grapes. However, in recent years concentrated grape juices from which satisfactory wines can can be made have been available in most parts of the U.S.

Winemaking can and should be fun. There is no reason why the careful home winemaker cannot make wines which compare favorably with the better commercial wines, and they will cost you less. Equipment can be simple or elaborate, depending on the quantity and variety of wines one makes. Wine grapes are available in many parts of the country, the concentrates almost everywhere.

Our first grape wines were made several years ago in our home, then in Mill Valley, Calif. We purchased 200 lbs. of Zinfandel grapes, and 100 lbs. of Cabernet Sauvignon from a nearby wine supply shop. The berries were stemmed by hand and crushed with a potato masher in the living room. It took three of us about three hours to stem and crush the grapes from which we eventually got about 20 gallons of dry wine. Fermenting was done in garbage containers holding a plastic liner. As we then had no press, the grapes were strained through cheesecloth much like our grandparents employed cheesecloth for making jelly.

In the simplest terms, wine is produced at home by first stemming the grapes, then crushing them in some fashion. Red wines are made by fermenting the grapes in the skins in open containers after which the pulp is pressed. White wines are made by pressing the grapes before fermenting, and completing the process in closed containers to which a fermentation lock has been attached. In fact, white wines can be made from red grapes if they are pressed directly after crushing.

Some home winemakers dispense with stemming the red grapes (often called black grapes) because, unless one has a mechanical stemmer, stemming can be tedious. However, unless one stems the black grapes the wine will contain excessive astringent tannin which may require some years of aging to disperse. Commercial wineries always stem their grapes. Discriminating home winemakers will do the same.

It would be foolish, perhaps disastrous, to try to make sound wines without consulting authoritative reference books. The best, perhaps the "bible" of books on home winemaking from grapes is Julius Fessler's **Guidelines to Practical Winemaking**. This is available in many winemaking supply shops, or can be purchased direct from Fessler at P.O. Box 2842, Rockridge Station, Oakland, Calif. 94618. Another valuable text, especially for those living in the Eastern U.S. is, **Home Winemaker's Handbook** by Taylor and Vine (Harper and Row). This book has some valuable conversion tables.

MAKING DRY RED TABLE WINE FROM GRAPES

200 lbs. of grapes can be fermented in one large plastic garbage container and will produce 12 gallons or more of wine. We always line the garbage container with a plastic liner available at winemaking supply stores.

Use, preferably, freshly picked grapes with a sugar content of between 20 and 24 percent (commonly referred to as 20 to 24 deg. balling). This will yield a dry wine of from 11 to 12½ percent alcohol. The degree of balling can be checked by pressing some juice into the hydrometer jar and measuring with the hydrometer.

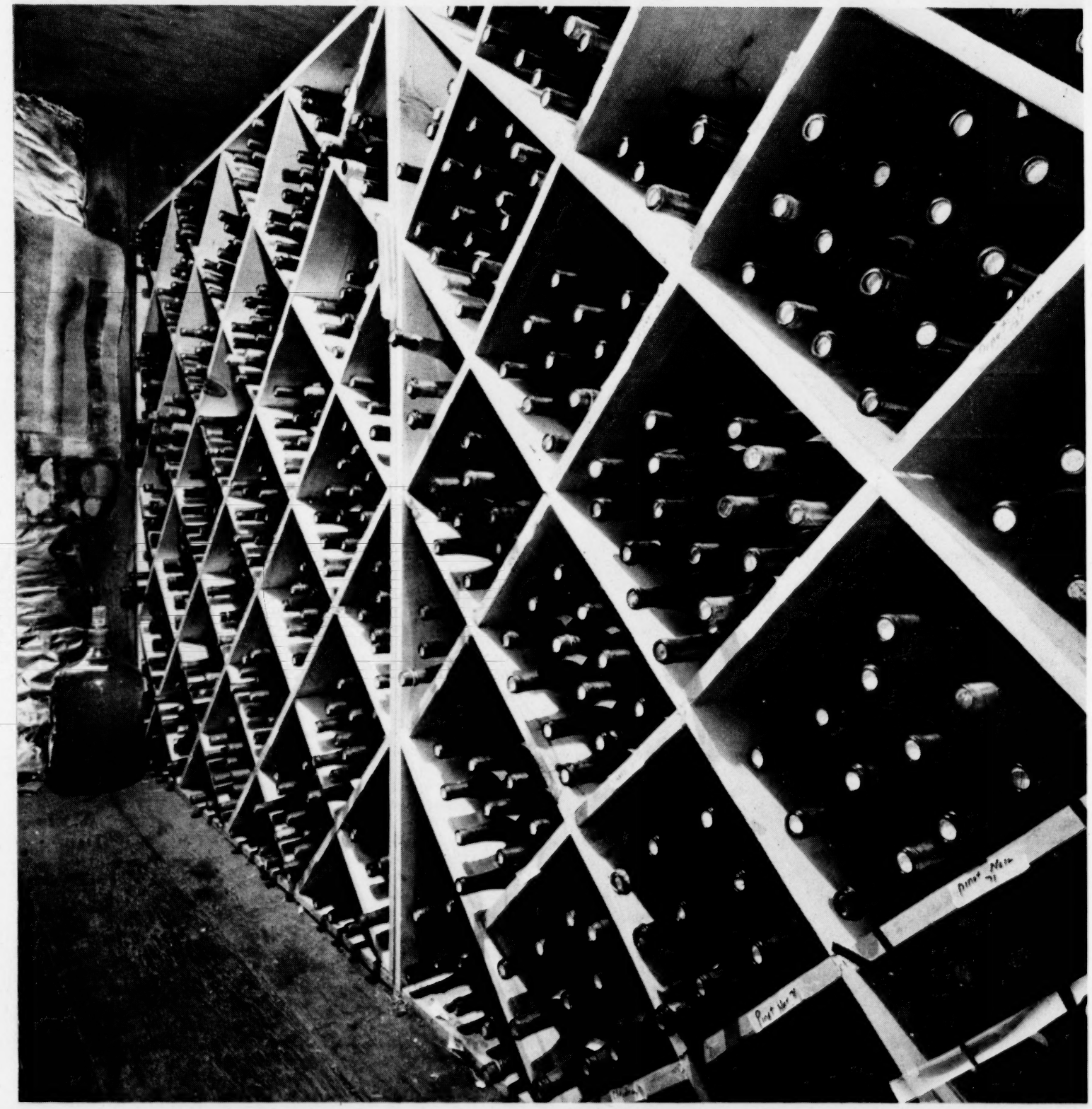
Stem and crush the grapes by hand or machine. Place the crushed fruit in the plastic-lined container and immediately stir in one tsp. sodium bisulfite or potassium metabisulfite (hereafter referred to simply as sulfite) into the grapes. Keep open containers covered with layer of cheesecloth. Allow to set for two hours. Deposit a packet of wine yeast (we use Montrachet) on top of the grapes. Within a few hours fermentation should commence.

Grapes grown in the Eastern U.S. or elsewhere may be low in sugar. Check the balling with the hydrometer. If the sugar content is below the 20 to 24 degree range use this formula: .125 lbs. ordinary granulated sugar will raise the reading of one gallon of juice by one degree. There are various ways to determine the amount of juice. One method is to figure 200 lbs. of grapes will produce about 12 gallons of juice (our average). Sugar can be added on that basis. We have successfully used this method for some years for grapes low in sugar.

As fermentation proceeds in the open vessel a cap will form on top of the grapes. This should be punched down periodically, perhaps two or three times a day. During fermentation we remove some juice to check the stage of fermentation in the hydrometer jar. We keep a record of the progress in a notebook.

The total time from crushing to pressing will vary from four to seven days. The longer the grapes are left on the skins the darker will be the wine. Following fermentation the grapes can be pressed.

At this stage one may follow either of two procedures. One may remove the free run juice along with juice available from pressing the grapes slightly. This free run juice is poured into glass carboys or jugs to which fermentation locks are applied.



Portion of the insulated wine storage room in which Palmer's wines are stored. Carboy on floor in background contains white wine not yet bottled. Temperatures stay at 60 degrees or less most of the time.

Photos by Phil Palmer

Then it is feasible to make a second wine from the unpressed grapes. Make a sugar solution in water of 20 to 24 degrees B in the amount of the wine already drawn off. Add to the grapes along with sulfite and wine yeast. The same fermentation process is followed after which the grapes are pressed to make the second wine. This is placed in carboys and jugs for secondary fermentation and clearing.

If one does not want to make a second wine, the grapes are pressed, the juice added to the free run juice in the carboys. At least three, possibly four 5-gallon glass carboys will be required because they should not be over three-fourths filled. Some fermentation will still take place and head space is needed. Fermentation locks allow CO^2 to escape without oxygen getting back into the container.

When fermentation subsides, usually within a week, most of the yeast and some grape solids will settle to the bottom. The wine should then be racked by siphoning the wine off into clean glass containers. The containers, carboys or jugs, must be filled to the top to prevent oxidation. It may be necessary to use some gallon or half-gallon jugs in order to keep all containers full. At this racking and at every subsequent racking we add one-half tsp. of sulfite per five gallons of wine. This is done by removing some wine with the wine thief into a glass, stirring the sulfite in and pouring it back into the glass vessel. Always attach a fermentation lock afterward.

The original fermenting containers should then be cleaned. Pour the solids out, flush with water, then fill with warm

Grapes can be stemmed and crushed at home. Throw a grape crushing party. Grapes are stemmed and dropped into a plastic child's wading pool. Guests roll up their trousers and start stomping with bare feet. Outside of the building a hose was available to wash up.

water into which a liberal amount of washing soda has been mixed. After the reaction to the washing soda has ceased, empty the carboy or jug, flush with clean water and the container is ready for use.

If one fails to rack the wine as soon as most of the yeast has settled out, the wine may take on an unpleasant taste and possibly produce hydrogen sulfide, known to high school chemistry students as rotten egg gas.

The full glass containers are then stored in a cool, dark space until the wine is clear and the solids dropped out. Oxidation of the wine which may give it a sherry-like flavor can occur if the wines are exposed to too much heat or light. Consequently, at our place following the first racking when the "lees" is removed we move the full carboys and jugs to our wine storage room which is heavily insulated and completely dark. A basement room is ideal. Normal household temperatures are likely to be too warm because the wine needs several months of storage to permit clearing. You may have a cool closet or a similar space.

Fessler advises home winemakers who make wines in small quantities to bottle within six months and we follow this practice. It is advisable, because of the danger of oxidation, to rack as seldom as possible between fermentation and bottling. An average number of rackings at our place would be two, maybe three, during the storage period. Our wines are usually bottled in from four to six months after crushing, but we do not bottle until the wine is clear.

All grape wines contain tartar which must be removed before bottling. You may have seen tartar crystals in bottles of old wine. The tartar, cream of tartar if you wish, will drop out of your wines if the storage containers are exposed to temperatures in the thirties F. A few cool nights will do the job.

At our home winery on cool or frosty nights in mid-winter we leave the door to the wine storage room open. Or one may place the containers outdoors at night, perhaps covered with an opaque material. But by all means do not leave the wines outdoors during daylight hours if exposed to warm temperatures or direct sunlight. At any rate, cold nights will cause the tartar to abruptly settle to the bottom after which one may rack the wines into clean containers and permit clearing to continue.

Many winemakers use fining agents to hasten the clearing. Egg whites (one egg white per five gallons of wine), bentonite, Sparkaloid, gelatin are used. We seldom use fining agents except with an occasional wine which is stubborn about clearing. White wines often clear slowly.

USE OF OAK

An essay could be done on the virtues of oak in winemaking. French and American oak cooperage is available. Do not use old whiskey barrels. An argument can be made that the best oak is Limousin from France which imparts the pleasant, vanilla-like flavor prized by many wine connisseurs. American oaks, and they vary from species to species, give a different flavor. Winemaking supply stores sell oak chips and sawdust.

If you do use oak be certain to sample the wine now and then to be certain too much oak flavor is not imparted to the wine. Use the wine thief for this. We age some of our wines in oak, especially the hearty, full-bodied reds. Some commercial wineries age all of their wines, reds and whites, in oak. An experienced wine taster can detect the presence of oak in a wine immediately. Limousin oak cooperage is very expensive, but chips are available. American oak cooperage is also expensive. Oak kegs and barrels must be kept clean and fresh between use. But, the whole business of using oak is subjective. You may have taken winery tours in which the matter was discussed. Some of our best wineries proudly display their rooms full of Limousin oak barrels, and rightly so in our judgement.

ROSE TABLE WINES

We make some light reds and rose every year. If made from hearty grapes such as Zinfandel, Petit Sirah or Gamay a very pleasant wine can result, suitable for imbibing with many foods. Rose has a bad name in some circles because commercial wineries sometimes make it from inferior grapes, resulting in a weak insipid wine. On the other hand, some superior wineries make superb rose from such grapes as Zinfandel, Gamay, even Cabernet Sauvignon. I say "even" because Cabernet Sauvignon is one of the world's greatest red wine grapes and is usually made into a full-bodied red wine which needs long aging.

To make a rose or a light red, stem and crush the grapes just as with red wines. But instead of allowing the grapes to ferment for several days on the skins, the grapes are pressed in from three to 12 hours after crushing. The longer the juice is left on the skins the darker will be the wine.

After pressing, the juice, which will still be actively ferment-

Those who make large quantities of wine may want to employ some sort of a mechanical stemmer-crusher. This is an ancient model at Phil Palmer's home. Mike Palmer is emptying a lug of grapes. Stems shoot out the far end. The pulp and juice come out the spout into the plastic garbage container in which fermenting will take place.

ing, is put into carboys not over one-half full. Space must be left for the active fermentation. Apply fermentation locks.

We often make a second wine from grapes used for rose, because there is still a lot of good left in the pulp. The same procedure is followed as when making a second wine described under red wines.

Just as with red wines, rack the wine when the lees has settled. Remove the wines for settling to a cool, dark room.

WHITE WINES

White wines may be made from either black or white grapes, though white grapes are usually used. The procedure varies from red wine making in that the grapes are pressed directly after crushing. The juice is then placed in glass carboys for fermenting. One tspn. of sulfite per 200 lbs. of grapes must be added. The fermenting takes place in narrow-mouthed containers not over half full and to which fermentation locks will be attached. Wine yeast is added to the juice. Fermentation will start shortly and will be very vigorous at its peak.

When fermentation subsides and the yeasts and solids settle out, just as with red wines, siphon the wine into clean glass filled to near the top, attach fermentation locks and store in a cool dark place. Tartar removal is accomplished just as with red wines. Add one-half tspn. sulfite at each racking.

WINES FROM GRAPE CONCENTRATES

There is considerable variation in the quality of wines made from concentrates, depending on the grape varieties used, the area of the grape's origin and the method of manufacture. Making wines from concentrates is relatively simple and has become a widespread hobby in the U.S. Even some of the large mail order chain stores are selling winemaking kits and grape concentrates.

We have made palatable wines from California concentrates and have sometimes used such wine to add substance to our second wines. Last year we made two sherries from Spanish white wine concentrates.

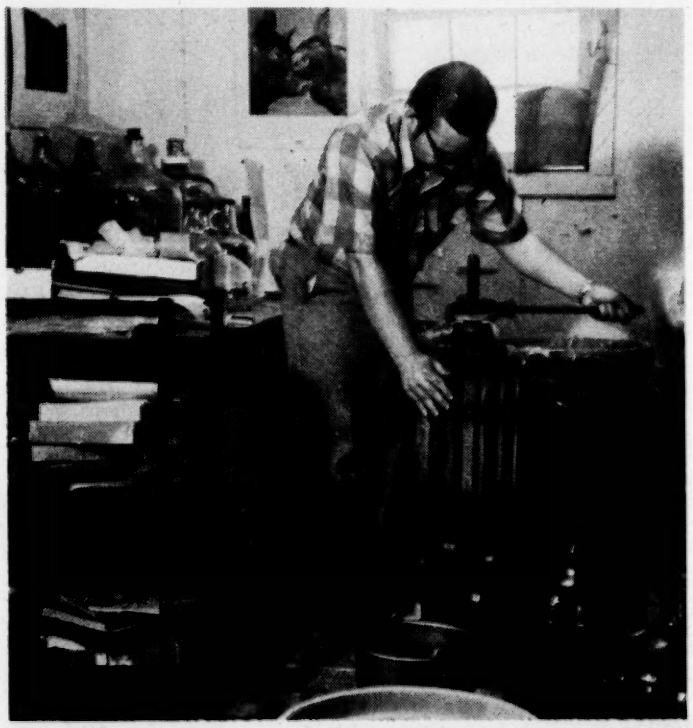
The concentrates often carry directions on the label or your winemaking supply store will inform you. These directions will vary from one concentrate to another. One adds the suggested amount of water, sometimes yeast energizer, pectic enzymes and sugar. The concentrate already contains sodium bisulfite, so you will need to add no more until racking later on.

After the ingredients are mixed the juice is put into half-filled glass fermenting vessels. Wine yeast is added and fermentation carried on just as with white wines made from grapes. Wine made from concentrates will cost you less than good wines on the market.

BOTTLING GRAPE WINES

Clearing time will vary from as little as three months to six. During the clearing and settling process and the occasional racking, one should check the condition of the wine by removing some with a wine thief. The clarity, aroma, possible off-odors etc. can be readily determined.

Whenever one racks into clean containers it is imperative to fill the container to the top to prevent oxidation. If the level of the wine falls, top it off with wine from another container. This is something one should especially watch when oak kegs are used. When we are certain fermentation has completely ceased we remove the fermentation lock and place either a



Corner of Phil Palmer's workshop serves as spot for pressing grapes. Mike is operating a small wine press. Fermenting container is in background. Wine will be put into the carboys.

firm rubber cap over the container or a rubber stopper, though we prefer the cap. Do not use corks as they may let air in and, as with rubber stoppers they may blow off.

Purchase sound wine corks from your dealer. At the time this is being written they cost in the vicinity of four cents each. All of our wines go into 5ths or the European bottles which hold a bit less. If your friends and you save your empty wine bottles it should not be necessary to buy any.

There are several types of hand corkers which will serve you well if bottling small quantities. If you make a lot of wine you may want to invest in or with friends share the cost of a fine Italian-made corker such as the Sipi which will do 20 cases or more an hour.

The wine bottles are first washed in a solution of soda ash in warm water, rinsed and placed in a rack to dry. I should suggest that whenever you consume a 5th of wine and plan to reuse the bottle, you should rinse the bottle in tap water right

after emptying. Otherwise material will form in the bottom which is sometimes impossible to remove. Fessler advises using distilled water for washing and rinsing bottles but this would require a tremendous lot of distilled water for a sizable home winery and does not seem practical. We have always used soda ash and tap water, just as have many home winemakers we know and with satisfactory results.

After corking the bottles should be stored on their sides—never with the cork up— for aging in a dark, cool room. The ideal temperature for wine storage would be around 55 or 60 degrees at the most. Constant room temperature is very important. Day to day or night to day variations can be harmful to the slow aging process required for wines to mature.

Light wines, generally, might be ready for drinking from a very few months to a year or more after bottling. Open a bottle now and then to find out how it is maturing. The changes in many wines after bottling are very marked. Heavy-bodied red wines such as Cabernet Sauvignon, Petit Sirah or Zinfandel may require several years of aging to soften and develop the desired bouquet and complexities.

Five gallon glass carboys are used for fermenting, storage, clearing etc. Wines in the three carboys are actively fermenting with locks on top.

We plan on at least six years of aging for a Cabernet Sauvignon, a wine which may continue to improve for even decades. Time must be allowed for the astringent tannins to soften. The oldest wines, at the moment, in our wine storage are some 12-year-old Bordeaux and Cabernet Sauvignons. Last year we opened a 40-year-old Carignan-Zinfandel blend which was still sound.

An advantage in making some light reds and whites every year is to provide good wines to be consumed young while the heavier wines continue to age. Most white wines should be consumed within a year or two after crushing, but some, such as Pinot Chardonnay may continue to improve for many years.

FRUIT WINES AND OTHERS NOT MADE FROM GRAPES

Table and dessert wines may be made from pit fruits, berries, honey (mead), citrus, dandelions and rhubarb. Blackberries, strawberries, peaches, plums and apricots are all favorites. We have made an excellent dessert wine, fortified with brandy, from a fig tree on our place.

There seems to be an inexhaustible number of recipes for these non-grape wines, and there is not sufficient space here to list them all. We suggest you refer to such excellent texts as **The Art of Making Wines** by Anderson and Hull (Hawthorn), the aforementioned text by Julius Fessler, or any of the several books reviewed in the accompanying article.

One factor is the availability and cost of fresh fruits. Fruits purchased at the local grocery store are not cheap. Perhaps you can grow your own or acquire some from a friend's garden. Blackberries and elderberries grow wild in many parts of the U.S. Neighbors who have a fig tree probably will have a surplus to share with you. Honey is available at any market. The flavor of mead will vary according to the type of honey. The last batch we made was from honey bought at the local Lucky Store.

Some recipes will call for pectic enzymes, yeast nutrients, sugar or raisins. Others may benefit by the addition of tartaric or citric acid, some of which can be found at your local market while others will be on the shelves of the winemaking supply store. Containers in which the fruit is fermented are the same as those used for grape wines, as are such necessities as wine yeast, hydrometer and jar etc. (see list of equipment and supplies).

Sweet pit fruit wines can be made by crushing the fruit, adding sulfite as with grape wines, pectic enzymes, yeast nutrient and wine yeast. Some recipes call for adding specified amounts of sugar, or one can take a hydrometer reading and add sufficient sugar to bring the percentage up to whatever degree balling is desired. Use the formula previously given.

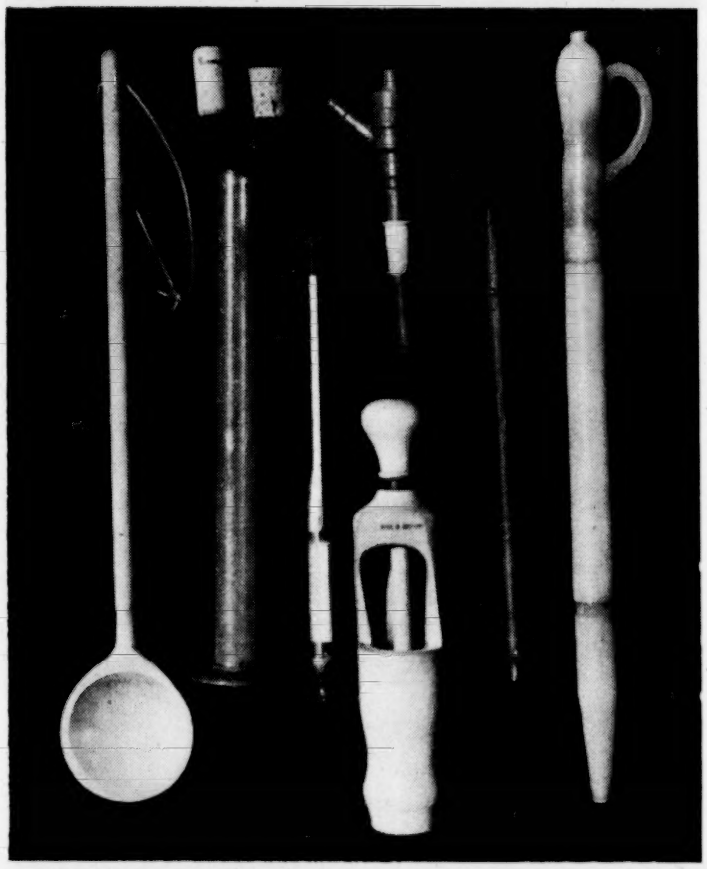
Fermentation is done in open containers. When fermentation is half completed, in order to produce a sweet dessert wine, brandy can be added in an approximate amount of one-fifth per gallon of juice, but this amount can be varied. Allow the mass to set for a couple of days. Drain the wine off or strain through cheesecloth or a nylon bag, place in a closed container (narrow neck bottle), attach fermentation lock. Add half tspn. of sulfite per five gallons at this point.

When fermentation has stopped completely, rack the wine into glass containers filled to the top just as with grape wines. Allow the wine to clear. If there are still seeds in the wine strain through a nylon bag again. When the wine is completely clear it may be bottled.

If you want a dry wine from pit fruit, crush the fruit, add sugar in the proportion called for in the recipe or take a hydrometer reading and add sugar to bring the juice up to whatever percentage wished. Some recipes call for sugar in the proportion of about one-third the weight of the fruit. Mix, add yeast nutrients, sulfite, pectic enzymes and wine yeast. Ferment in an open container as with red grape wines. When fermentation has stopped, press or strain the wine, place in closed containers with fermentation locks. Follow same procedure as with grape wines.

With berry wines or figs, add varying amounts of sugar depending on one's taste. Some recipes call for as much as two gallons of water for 10 lbs. of berries, others for as little as two quarts of water.

Experience will determine which recipe you prefer. Crush the fruit, add the determined amount of water and sugar, sulfite (1 tspn. per five 10 or 12 gallons of liquid approx.), and take a hydrometer reading. A reading of 24 degrees balling will produce a dry wine of approximately 12½ percent alcohol if fermented dry. Yeast nutrient may be added, pectic enzymes and the wine yeast. Ferment in an open container. When fermentation is complete, press or strain or both, place in narrow-necked glass bottles and attach fermentation locks. Add one-half tspn. sulfite per five gallons of liquid at this stage. If your wine has been made from a fruit such as figs which contain innumerable seeds, you may find it necessary to strain the wine through nylon bags. Proceed from here on just as with grape wines. If you want a sweet dessert wine you may add brandy as with sweet pit fruit wines.



Stirring spoon, hydrometer jar and hydrometer, wine corker (lower center), wine thiefs (right) and corks. Object in upper center is a convenient gadget for filling the bottles. A plastic hose is attached, and the wine bottle will be filled by siphoning to the proper level.

Mead or wine made from honey has become a favorite in recent years. The recipe given here is from Davis Bynum, owner of the Davis Bynum Winery. We have made good mead with this procedure.

10 lbs. honey
15 qts. unsoftened water
12½ cups sugar
10 yeast nutrient tablets
2½ oz. tartaric or citric acid
2 pkts. Montrachet yeast
2½ oz. finely chopped raisin for tannin flavor
5/8 tsp. sodium bisulfite or potassium metabisulfite

The ingredients were dissolved in warm water and placed into two five gallon carboys. Total bulk was about five gallons. The Montrachet yeast was dropped into each carboy a few hours after the ingredients had been mixed.

The progress of one batch of Mead we made is recounted below. The ingredients were mixed on a Feb. 8. By Feb. 25 the fermentation had subsided. The liquid in the two carboys was siphoned into one five gallon carboys filling it to the top. A fermentation lock was applied. On March 21 the Mead was racked, sulfite added. The wine was still quite cloudy at this stage. The carboy, after racking, was not quite full, and had to be topped. As we had no Mead with which to top it we used two quarts of a California Chablis.

Mead clears very slowly. On Nov. 1 of the same year the wine was again racked, topped with just a bit of the same chablis. One-quarter tspn. of sulfite was mixed in. The wine was quite clear but we still waited until Nov. 11 to bottle. A year later the wine was still improving but several bottles of it had been consumed and pronounced very good by experienced mead drinkers.

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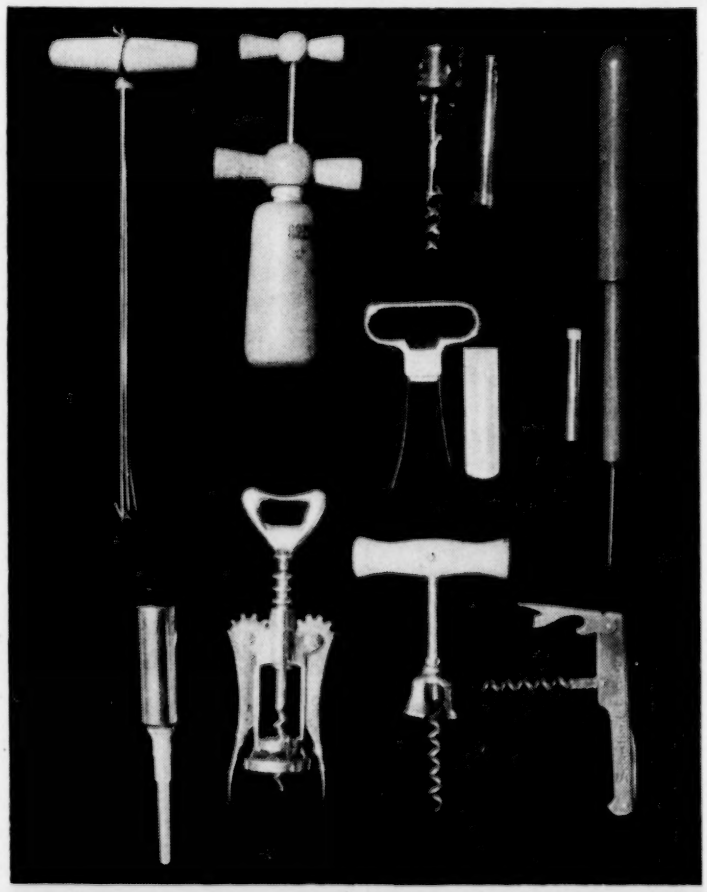
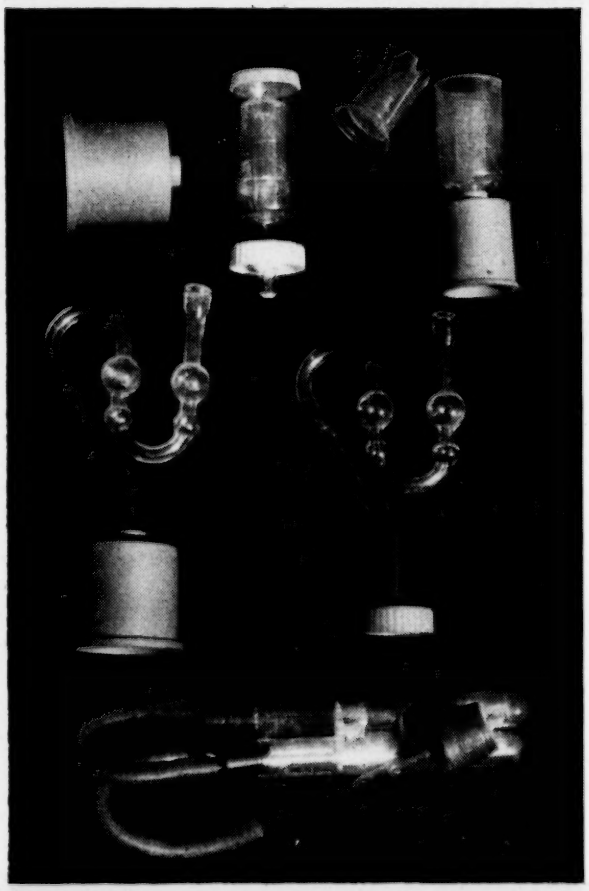


Object upper left is designed to retrieve corks which have been pushed into bottles of wine. The others are various types of cork removers. The wooden job at top left center is a favorite.



Several types of fermentation locks. Object at upper left is a rubber cap to completely seal unbottled wines which are through fermenting.

LEGAL NOTES

The regulations on making wine for home consumption are peculiar and we hope will one day be revised. As of now, it is legal for the Head of Household to make up to 200 gallons of wine a year to be consumed entirely on the premises. None may be sold. Head of Household is defined as the male head of the family. Thus, neither women nor adult bachelors may legally make wine, a foolish restriction of course. At one time a bill was introduced into Congress to permit male bachelors to make up to 100 gallons of wine. As far as we know, females were still excluded.

Before making wine you should contact the Alcohol and Tobacco branch of the Internal Revenue Service at your nearest IRS office. Ask them to send you permits to make wine. They will send you two copies, one of which you sign and return to the IRS for their files. The other copy, which will have the IRS stamp on it, contains spaces to record the kind and amounts of wine you make. The permit instructs you to return the latter copy to the IRS office following your winemaking.

EQUIPMENT and SUPPLIES for Making Table Wines from Grapes

- Hydrometer calibrated for winemaking
- Hydrometer jar, preferably glass
- Fermenting vessels (plastic garbage containers with plastic liners, glass carboys, jugs, bottles)
- Funnels (plastic)
- Pails (plastic)
- Cheesecloth
- Wine thief (plastic)
- Hoses for siphoning (plastic or rubber)
- Fermentation locks
- Rubber caps or plugs for carboys and jugs (not corks)
- Oak kegs (optional)
- Storage containers (5-gal. glass carboys, jugs, bottles)
- Wine press if large quantities are to be made
- Wine corks and a bottle corker
- Wine bottles

SUPPLIES, CHEMICALS, etc.

- Washing soda (soda ash) for cleaning glass containers
- Wine yeast such as Montrachet
- Sodium bisulfite or potassium metabisulfite
- Oak chips or sawdust (optional)
- Pectic enzymes, citric acid, yeast energizer sometimes called for

All of the above items are available at winemaking supply stores. Some of the above can be found at any hardware store. Three or four 5-gallon carboys will be needed to accommodate the juice from 200 lbs. of grapes during fermentation. Check the yellow pages of your phone book for sources of supplies.

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The dipsomaniac and the abstainer are not only both mistaken, but they both make the same mistake. They both regard wine as a drug and not as a drink.

–Chesterton

Establishing the Home Vineyard

BY PHIL AND MIKE PALMER

There are many good reasons for growing your own wine grapes these years. The cost of good table wines is still going up. Home winemakers may find it difficult to locate premium grape varieties as most growers are reluctant to sell in small quantities. If one does buy wine grapes there is the chance the fruit will not be in prime condition by the time he gets the grapes home. By having your own vineyard you may plant the varieties you want which will grow in your climate, and as soon as the grapes have developed the proper sugar content they can be crushed right off the vine. Winemakers know the sooner after harvesting grapes can be crushed, the better will be the wine. As if those are not arguments enough, winemaking is a satisfying, rewarding experience.

A few years ago we moved from a shady, small hillside home in the redwoods of Mill Valley, Calif. to a spot in the country near Petaluma, Calif. 40 miles north of San Francisco. One of our first projects was to set out a vineyard containing about 120 vines of the premium European wine grapes. The vineyard is now established and producing. The average homeowner does not have sufficient land for that many vines, but even a modest-sized backyard can support a dozen or so grapevines. Sometimes a group of home winemakers share a sizable piece of land to grow their own grapes.

The grapevine is a fascinating plant. Its culture and care and behavior are like no other plant we know. The vines must be properly planted, trained and pruned to produce well. But any careful gardener will be successful if he does a little research and follows the rules.

Perhaps the first step before establishing a vineyard is to contact your county agent, or farm advisor for information on wine grape culture in your area. Many universities and state colleges have agricultural extension services which will provide free information. In California, for example, the University of California at Davis has one of the world's great viticulture and enology departments. They were extremely helpful to us when we started our vineyard, both in furnishing technical advice and referring us to sources for wine grape stock.

The two finest reference books we know of on the subject are **General Viticulture** by A.J. Winkler, University of California Press and **A Wine-Grower's Guide** by Philip M. Wagner, Alfred A. Knopf. Winkler is a world-known authority on viticulture. The book is very technical and is meant primarily for the commercial industry, but it is scholarly, thorough and will be found on the shelves of grape growers everywhere. Philip M. Wagner, a former editor of the Baltimore Sun is widely known for his activity in the wine field. The book is very readable, a real favorite of ours, and will answer most of your questions on the establishment of a vineyard.

There are wine grapes of one variety or another which will produce in almost any climate in the U.S. The famous European wine grape species, Vitis vinifera, produces the great wines of France, Germany, Italy and Spain. The vinifera require a particular sort of climate, neither too hot, too cold nor too humid and with maximum sunshine. Certain parts of

Portion of the author's home wine grape vineyard. Vines here are of various ages. Those at the left are five-year-old Gamay Beaujolais started from cuttings. These are head trained, no trellis. The photograph was made in early May. The vines will put on considerable more growth by late summer.

California, such as some warm, sunny climate zones adjacent to San Francisco are ideal for the vinifera. Some varieties are also planted in Southern Oregon, Washington and other scattered spots.

The variation in climates in Central and Northern California are great, even within an area of a very few miles. So, if you want a vineyard in these regions do check with your farm advisors before ordering planting stock. The biggest single factor in growing wine grapes is the climate, as almost any soil will do except those that are soggy or high in alkaline content.

The Finger Lakes section of New York State, portions of Southwestern Michigan, parts of Oregon and Washington and sections of many other states will support the native American grapes used for wines, as well as the recently developed French hybrids. The hybrids are a cross between native American grapes which produce a wine of a flavor quite different than that from vinifera, and the European wine grapes. Dry table wines, sweet dessert wines and champagnes are made from these varieties.

We'll assume you have checked the proper information sources, have found which grapes will thrive at your place and have located a source of rootings or cuttings. How much space do you have? Is irrigation water required? Is the soil suitable?

Our vines are planted six feet apart in rows 12 feet apart.

Crowding the vines serves no purpose because yield per vine will drop. In some climates spacing might be 8x8 feet or 8x14 feet or somewhere in between. Check with your farm advisor. An area of 5,000 square feet might accommodate 50 vines which at maturity, depending on the variety, might produce 800 to 1,000 lbs. of grapes which could give you 60 gallons of estate bottled wine annually. Grapevines will give you a small crop three years after planting, a good crop from four years on.

These are rough figures and would depend on the variety of grape, the climate, soil, rainfall, growing conditions. A dozen vines in your backyard could produce enough grapes to make 15 gallons of wine, 75 5ths or 6½ cases.

You will need certain tools. For a small backyard operation a spade and a cultivating tool to keep the weeds down. On larger area, such as ours, a rototiller does a fine job of turning the soil over and cultivating. Other tools will include pruning shears, possibly a heavy-bladed French hoe for removing stubborn weeds and grass from around the vines, and a duster to apply sulfur to prevent mildew during the growing season.

Irrigation is not likely to be a problem in the Eastern U.S., but in the summer-dry climates in parts of the West watering may be needed. An annual rainfall of 15 inches or more is sufficient for European varieties in soil of at least five feet in depth. However, one and two-year-old vines will need occasional soaking during the dry months until the roots have grown deep. If your location is one of very low rainfall, some summer irrigation will be needed even for older vines. As this is being written there are a few one-year-old vines in our vineyard. They will be given a soaking every two weeks until approximately August even though our rainfall averages 25 inches annually. From the third year on no irrigation will be required though some vineyards in climates similar to ours do give their mature vines a dose of water in mid-summer as insurance.

Once your site has been chosen turn the soil over to a depth of ten inches or so in the fall. Then lay out the vineyard carefully. Some vineyard owners place a peg at every vine location and the final grape stake is driven later. In our vineyard we drove grapestakes at each location before planting.

The grape stakes in most common use in our day are 2x2 in. by five feet pressure-treated wood. You may be lucky enough to find some sound heart-grade redwood, cedar or cypress. The stakes must be durable enough to survive years of contact with the soil. Metal stakes are also coming into use. At any rate, use long-lasting stakes which will not rot out and need replacing.

Check with your farm advisor for planting stock sources. Rooted cuttings one or two years old are most satisfactory. If you are planting the vinifera species in an area where wine grapes have been growing it will be necessary to use cuttings which have been grafted onto phylloxera-resistant roots such as Rupestris St. George. Phylloxera is the root louse of American origin which wiped out the European vineyards in the 19th century. If phylloxera is not present in your area you can plant cuttings, but the survival rate will probably not exceed 50%. We should add that some French hybrid grapes are also susceptible to phylloxera in which case grafted stock is used.

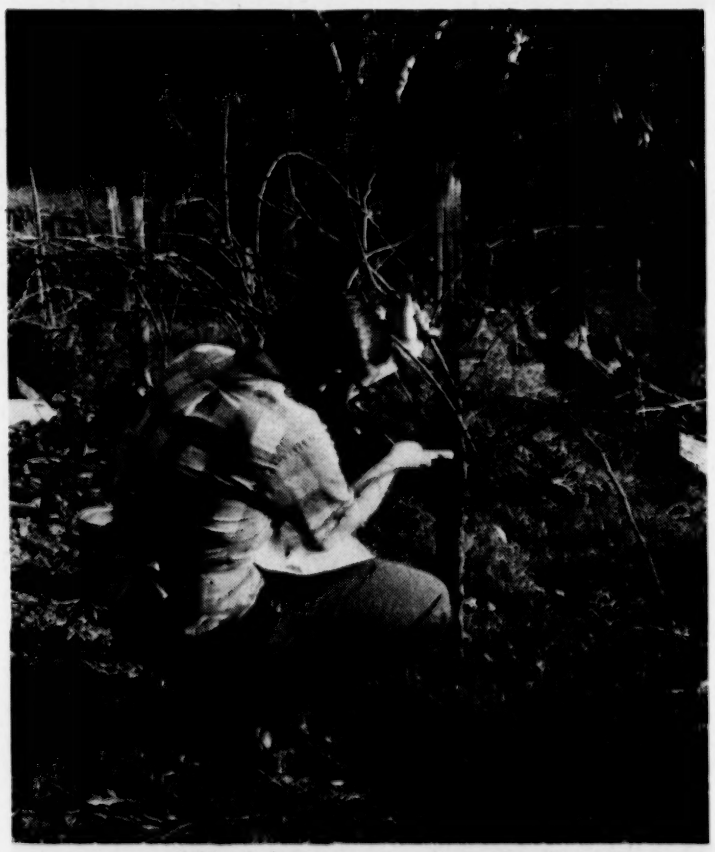
Our vineyard happens to be far from any wine grape vineyard, and grapes have not been grown here in past years. The University of California advised us we would be safe in using cuttings. Consequently a part of our vineyard was planted from available grafted rootings, but because of scarcity of planting stock at the time a considerable part of our vineyard was started from cuttings. Planting is done during the dormant season.

Rootings or cuttings may be from a foot to 16 inches in length. Our unrooted cuttings were planted two to a stake. If both survived and established roots, the less vigorous of the two was pulled. If rootings are used, trim off all of the buds except the top two, and trim the roots within six or eight inches of the top.

When planting leave only the top bud or two above the ground. Pack the dirt firmly around the cutting or rooting, and cover the exposed bud loosely with dirt so it will not dry out.

Fresh cuttings ready for planting. These are from a foot to 16 inches long. The end which is to be inserted into the ground should be cut at a diagonal for reference. Some growers score the sides of the cuttings to encourage root growth. The grape variety is Pinot Chardonnay.

Some wine grape species are trellised for best production while others need not be. Check with your farm advisor or reference books on this. In our vineyard the Cabernet Sauvignon, Chardonnay, White Riesling and Pinot Noir are trellised which is sound practice. Trellised grapes when they mature are cane pruned. Our Gamay Beaujolais, Sylvaner and Gewurstraminer are not trellised and when mature are head trained, a different type of pruning.



Mike Palmer pruning five-year-old Cabernet Sauvignon vines. These are cane pruned for a trellis. In the author's vineyard.

Whether or not you trellis will determine the length of your grape stake and the method of pruning. Stakes which support a trellis protrude about waist high from ground level and must be sturdy enough to support the wine growth and trellis wire. Sometimes metal stakes are driven between the stakes to help support the trellis. With non-trellised vines the stake is left about three feet above ground. After several years the trunk of the vine should be sturdy enough to stand without being tied to the stake with twine.

Planting, then, is usually done during the dormant season. No training or pruning is required the first growing season. But during the following winter dormant season the growth should be cut back to only two buds. This may seem drastic but it is essential in order to strengthen the root system. During the second summer the most vigorous shoot is trained up the stake and lightly tied with binder twine to the stake. Trim off any other growth than the main shoot because it will be the eventual trunk for the vine. Trim off any flower buds or blossoms which might form on these young vines. In fact no grapes should be permitted to form until the third year at which time a small crop will appear. Pruning and training become more complicated after the second year of growth, but if you follow the above procedures your vines should be off to a good start. As for pruning itself, some universities, colleges and farm advisors will furnish you with pamphlets on pruning of grapes.

Ecology of Compost

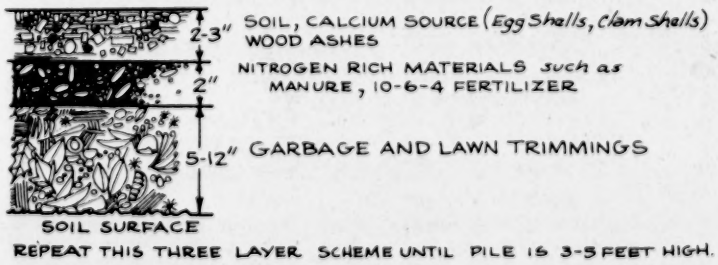
Backyard composting, brief and simple. Composting is the most basic recycling there is, and, if you've priced fertilizers lately, one of the most sensible.

—Richard Nilsen

Ecology of Compost
(A Public Involvement Project)
Daniel L. Dindal
1972; 12pp.
$.10 postpaid
from:
Office of Public Service
and Continuing Education
State University of New York
College of Environmental
Science and Forestry
Syracuse, NY 13210

Organisms that do not need gaseous oxygen are called *anaerobic*, whereas, plants and animals requiring oxygen are known as *aerobic*. Since complete composting is caused by aerobic forms, adequate circulation of air is essential. Proper moisture levels and turning maintain and promote an aerobic micro-environment within the pile. Remember also, to make openings in compost containers or bins for air circulation and drainage. Another method is to stack your organic debris around and on top of wooden poles which are pulled out later providing aeration channels through the heap. The lack of oxygen is usually caused by packed or matted materials and too much water. Anaerobic organisms grow well under these conditions. They produce putrid odors from gases such as ammonia and hydrogen sulphide, and decomposition is incomplete.

ARRANGEMENT OF LAYERS FOR COMPOSTING


2-3" SOIL, CALCIUM SOURCE (Egg Shells, Clam Shells) WOOD ASHES
2" NITROGEN RICH MATERIALS such as MANURE, 10-6-4 FERTILIZER
5-12" GARBAGE AND LAWN TRIMMINGS
SOIL SURFACE

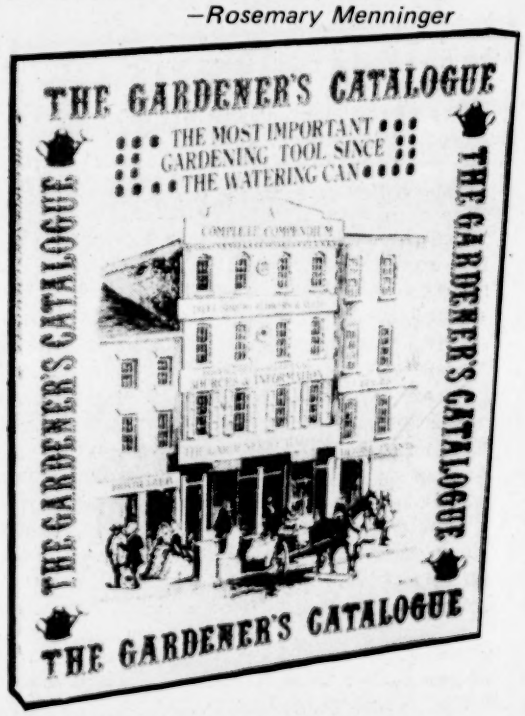
REPEAT THIS THREE LAYER SCHEME UNTIL PILE IS 3-5 FEET HIGH.

The Gardener's Catalogue

"Catalogue" in this case means anthology—— a compilation of articles by horticulturists, university professors, and Rodale reprints. Many, like the scientific description of seed germination are unusual and excellent. But they are nearly lost in this big overblown production number that is padded with old fashioned graphics and lists. When gardening has such an exciting future, a gardeners' catalogue doesn't need to be nostalgic. I think there is an audience for a streamlined version of this book—— concentrating on topical articles, balancing the emphasis on ornamentals with more space for food crops, and published once a year.

—Rosemary Menninger

The Gardener's Catalogue
Harvey Rottenberg
and Tom Riker
1974; 317pp.
$6.95 postpaid
from:
Wm. Morrow & Co.
105 Madison Avenue
New York, NY 10016
or Whole Earth


THE GARDENER'S CATALOGUE
THE MOST IMPORTANT GARDENING TOOL SINCE THE WATERING CAN
THE GARDENER'S CATALOGUE
THE GARDENER'S CATALOGUE
THE GARDENER'S CATALOGUE

. . . think of dormancy as a jailbreak that didn't happen, for one of several reasons. Either there was a guard on the wall to prevent it (the presence of an inhibitor); or the convict didn't want to break out because there was snow on the ground and he had holes in his shoes (absence of a primary stimulus or gibberellin); or he couldn't persuade a friend (a cytokinin) to restrain the guard while he escaped. So he stays in prison.

Gibberellins appear to be a must for germination of all seeds. In the absence of these hormones, germinative processes such as production of certain key enzymes are not initiated. Post-harvest dormancy of many grasses and grains of cereals is released by a treatment with gibberellins alone. A short moist prechilling treatment (5 days at 50°F.) or prolonged dry storage will also break the dormancy of these seeds. Both treatments increase the level of gibberellin in the seed, an example of changes in hormone level resulting from environmental changes.

•

The best Cauliflower I saw in Europe were grown on mucky or swamp land, thrown up in wide ridges, wide enough for three or four rows, leaving a ditch of water between each, as shown in the engraving. Every evening the water was thrown upon the Cauliflower by means of a tin pan, like a small milk pan, fastened to a long handle. The ditches were occupied with Water Cress, and the two crops were said to be very profitable.

•

Just one other thing about trees and shade. If you really want significant results, both from a shade standpoint and an esthetic viewpoint, plant the trees *close* to the house. This means within 6 to 8 feet. Trees have a tendency to lean away from objects nearby; so the trunks will eventually have a small curve to them and the house will give the effect of being nestled between the trees.

Better plants under better lights, etc.

Dear Whole Earth Catalog:

I grow plants under lights and have a special interest in tropical and subtropical plants that have flowers of beauty, fruit that is edible, or some other esthetic or practical use. That rather leaves out most of the indoor plants that can be grown without lights, as far as I am concerned. Flourescent lights are a very "soft" technology. I run ten four-foot tubes plus all my other electricity users for $1.69 a month. Eight are currently running 20 hours a day, and two are running 24 hours a day. I never could afford plant stands, so I use cardboard boxes, discarded milk bottle cases, whiskey boxes, etc. My lights are up-side down, and they sit on old Tiger's Milk containers (before they put sugar in Tiger's Milk . . . maybe someday, now that sugar costs so much, people will let their customers sweeten food to their own taste) above the plants. Large plants go on the floor, and small plants are raised. Natural sunlight is ideal for all plants, but my back-yard is literally a dump where it isn't paved, so I can't even put out plants for the summer.

Most people grow African Violets, orchids, and begonias under lights, so they say things like "use 14 to 16 hours of light a day" and argue about whether cool whites or gro-lights are best. I grow citrus trees, eucalyptus, guavas, passion-fruit (a ten foot long vine with four inch leaves since this spring), poincianas, date-palms, pomegranates, carob trees, and the like. I say that, for light-loving trees, one must run lights from 18 to 20 hours a day if you live in the North. All possible sun-light must be provided as well. When you grow light-loving plants from seed with ordinary flourescents, they get long and weak and die.

To properly supplement cool-whites with incandescents for a large set-up like mine (60 square feet of growing space) would be very dear. I limped along on regular gro-lights for three years. Then I discovered vita-lights which are expensive (more than five dollars for a four foot) but are guaranteed for two years and which show noticably better results than any type of gro-light made up until this summer. To get flowers and fruit readily, however, these lights need to be supplemented with special red bloom lamps. I could not afford the fixtures. A solution has finally come to the problem. George W. Park Seed Company (Greenwood, S.C. 29647) sent me a special supplement for regular customers called, "Thoughtful Gifts for Gardeners." You will surely get it if you are on their mailing list (your chances of being a regular customer if you have got their catalog are about 90%). Test reports are shown on the Westinghouse Agro-light (lite). It outperforms previous lights as far as lush compact growth and flowering quite noticably. It works better than Vita-light combined with the red incandescent bloom lamps. Park has a good reputation, and the tests were run at North Carolina State University.

In short, those who want to grow from seed, grow flowers, and grow vegetables in the city should first go to a wholesale lighting fixture place and pick up a cheap double tube flourescent strip ($10.00). This will need a cord and a timer. If you follow hardware store sales, you can get a decent timer for seven dollars and run three double-tube lights off one. You can order agro-lites from Park for $20.75 for four.

Almost no suppliers of tropical plants ship anymore, and the few who do are expensive and so small I hesitate to list them. Park and Gurney have some good cheap stuff. Gurney is good on a few of the most popular plants like citrus, figs, the small banana gardenias, and sago palms. Park has some very far-out seeds for ultra-green-thumbs like tea (thea sinensis), jacaranda, and cassia alata.

A discovery I am happy to share, however, is J.L. Hudson, Seedsman, P.O. Box 1058, Redwood City, California 94604. Many books on tropical plants are fine until you look at suppliers. It is a big drag to send off five letters to these addresses, get three back marked "return to sender", get one letter of apology that the supplier no longer mail-orders, and get one price-sheet with virtually no plant under ten dollars. Since many tropical and sub-tropical fruit trees are grown commercially in Florida, California, or Hawaii, one should be able to get them for prices within reason, but I will be damned if I'll pay $17.50 for a ten inch kumquat. Hudson sells no plants, but he is cheap, and his catalogue is 88 pages of small print not including an insert on herb and vegetable seeds. The descriptions are short, the proof-reading is bad, and you have to learn latin names to use the book. Stirling Macoboy's **What Flower is That?** (Crown, N.Y.C.) helps as much as anything to sort out the plants, many of which are Australasian.

One must be very careful not to jump to conclusions. He lists plants in families that are known for one member like Pistacia (nuts), but the useful commercial variety is missing, not being propagated from seed. A few of my favorites are paw-paw (which may be planted outside anywhere other than the far North), capers, dwarf papaya, royal poinciana (easily grown and very attractive even when not flowering), persimmon, dracaena draco (the true dragon tree of the Canaries, easy and better looking than the other dracaenas), eucalyptus citriodora (lemon-scented . . . his gums are about half what seed costs from other people, and the germination is better), true sweet bay laurel, olive, beautiful edible passion-flowers, easy guavas, and lots of rare flowers and trees from all over the world. Seed and plants from abroad often do not take, plants particularly. Unless you are rich and powerful, get your orchids at home. An expedition can bring 'em back alive, but cheap orchids from Asia, alas, don't survive sitting around being inspected, and seed from Australia and New Zealand is often dead by the time it gets here. I would take a chance on English seed. It isn't so far, and their major seed houses are quite sophisticated. They are also cheap, unlike Oceanea.

If anyone knows of a good mail-order house for tropical fruit trees, vines, and plants like chocolate, cola, etc., I would be very interested. On another matter, morning glories are neither very safe nor very pleasant, no matter how you take them, but if you are interested in plant knowledge without breaking the law or spending a lot of money, you may sprout from one to five packages of Heavenly Blue in a bottle of water in the sun. Seed covers are easily removed. The naked sprouts are washed in a strainer to remove cellulose gook and may be taken right away or dried in the sun until they are like tiny bits of plastic, a package filling a thimble. Severe stomach hassles are avoided this way, but they are still strong, and a depressant such as weed, beer, a little cough medicine, and the like will make things easier. Niacin will enable one to bail out if things get rough. Pearly Gates are stronger, but glories are simply pretty rough for soft gringos, so small doses are best. Peyote is the only thing of that nature I have had that was worth the hassle, and it is no longer legal.

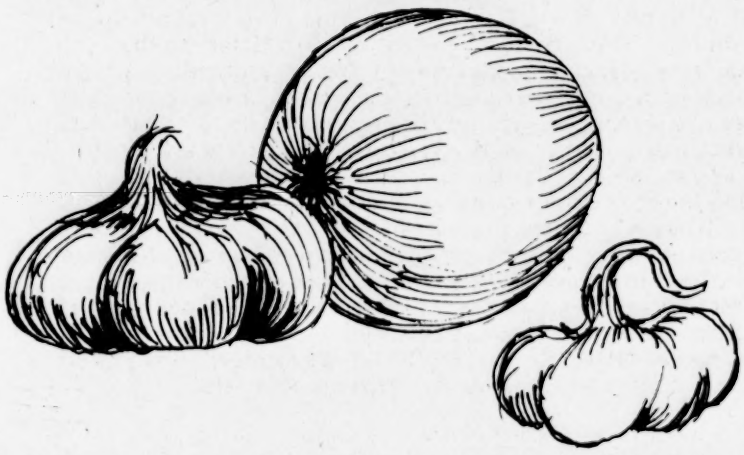
Still, glories are good if you are at the end of your rope as long as you remember that it feels real good when it stops. Artificial highs leave people empty. Glories and strong doses of peyote help you appreciate the tonal, the ordinary grind of existence, which is just as mysterious as the nogual.

I definitely don't agree with those who tell you to buy from local nurseries rather than mail-ordering outdoor plants. Check out the prices, the selection, and the quality, and you will order trees from Miller's or Stark's rather than picking them up at Joe's Roadside Rip-off. My friends who mail-order have fruit-trees growing in their yard instead of leafless trunks that used to be. You can get any size you want if you want to pay, and local places almost never carry good-tasting varieties that are not suitable for long-distance shipping.

Your Faithful Reader,
Lawrence Philip DeMott
New Haven, Connecticut

P.S. Get tropicals outside during frost-free seasons for better growth and for starting seed.

Bulbs



Howdy

Dutch Gardens, P.O. Box 30, Lisse, Holland has a proverbial good-deal in spring-flowering bulbs—— hyacinths, tulips, daffodils, iris, crocus, anemones, etc. Not only do they have incredibly low prices (check your local gardening store) the quality of their stock is numero uno. Shipping is free with orders over $30 and if your order is over $50 you get 10% of the price of the total order in extra bulbs of your choice.

$30 is nothing if you order with friends and the company provides individual order forms for that purpose.

They have a truly beautiful book describing the plants and their care with sensational color photographs that will inspire everyone to order huge quantities. We all did and were so pleased we're ordering again this year. They're very dependable straight people to deal with.

Enclosed is their introductory letter—— I threw away the 2 page "testimonial" sheet and won't give up the catalogue for money.

It would be good to encourage people to write only if they are serious about an order. Right now their catalogue is free but it must cost a mint to print and if too many people ordered the catalogue and didn't order they'd be bummed out enough to start charging for it.

Glad to have you back!

Regina Bellstrom
Townshend, Vermont

Delivery:
In the fall at the right planting time.

Prices are:

Hyancinths	20c each	Iris	6c each
Unusual and rare tulips	20c each	Crocus	6c each
Tulips, group 1	9c each	Galanthus	6c each
Tulips, group 2	11c each	Scilla Siberica	6c each
Tulips, group 3	13c each	Muscari	6c each
Tulips, group 4	16c each	Chionodoxa	6c each
Daffodils & Narcissi	20c each	Puschkinia	6c each
Dutch Hybrid Amaryllis	$4.95 each	Anemones	6c each

WANTED: LAND FOR PARKS

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If you own land suitable for public parks or open space, you might wish to investigate the substantial tax savings and cash flow benefits possible through a donation or bargain sale to THE TRUST FOR PUBLIC LAND, a charitable, nonprofit land conservation organization. TPL works with landowners and public agencies to preserve valuable open space, establish public parks and create living memorials. Maximum publicity given corporate or individual donors when desired.

TPL's experienced staff would be pleased to provide a prompt and confidential evaluation of your particular situation.

THE TRUST FOR PUBLIC LAND

82 Second St. San Francisco, CA 94105 (415) 495-4014

Mushroom details

Dear Epiloguians:

greetings: a new book suggestion for yr epilog, coming under Land Use/Mushrooms (p. 81, LWEC) is:

Mushrooms of North America by Orson K. Miller, Jr. Publisher: E.P. Dutton & Co., NY, 1973. $17.95
and praps even a review$$!?!

viz, b.v.d., i.e&c:

Mushroom books get outdated fast because of name changes, reclassification & so forth. While Miller's book costs twice as much as Smith's, it is at least four times as helpful, having incredibly good color pictures of 292 species, and detailed descriptions of 422 species, from size shape, texture & to hallucinogenic properties and cooking notes. A little big for a field guide but its the next best thing to "The Agaricales in Modern Taxonomy" (Rolf Singer) and several thousand times more readable.

The Key to the American Psilocybin Mushroom is still the best book on that subject, though much more scientific information can be found in volume 50 of **Mycologia.**

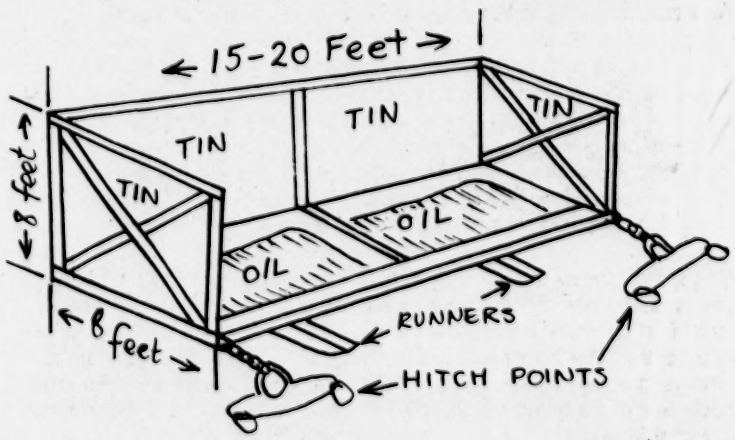
John Beutler
Chadds Ford, Pa.

P.S. How about R. Gordon Wasson: **Soma: Divine Mushroom of Immortality.** Harbrace 1971, $7.50 softcover?

Hopperdozer

To be pulled by horse through clover, alfalfa, meadowhay. grasshoppers jump up, fly against tin and fall into oil [old crankcase oil or vegetable oil, depending on whether the grasshoppers are to be eaten] cheap, organic pest removal.

—J.D. Smith



Conglomerated Seeds

Dear Stewart Brand:

Here's a piece of information which may be of interest to Whole Earth people; I personally take it very seriously.

In the past you have recommended W. Atlee Burpee as a source of seeds and gardening supplies. Of course, Burpee's was a grand seed firm and its founder a true plantsman. However, Burpee's is not the firm to be recommended today. Here's why:

The last I heard, from an old-time horticulturalist and newspaperman, Burpee's was in process of being taken over by a conglomerate, I.T.T., as I recall. Now this has serious consequences for the planting world, because it seems that other large seed firms except one have also been bought up by various conglomerates. What this means is that sooner or later the seed firms who are owned by non-plantsmen come under pressure to concentrate on the standard profitable lines of seeds and cut out the more marginal species and varieties grown only by serious gardeners and people who want nutrition and flavour rather than huge even-sized fruits or vegetables which taste like wood and ship well. You can see the trend if you study the catalogs: the "commercial", well-advertised varieties of tomatoes, corn, melons and so on are heavily featured and one by one the less-known varieties get chopped off. They are no longer planted for seed and are finally lost. This is true in flowers too, for example a rose like Charles Mallerin which makes other red roses look like plastic and smells like a preview of heaven is no longer grown anywhere—— even by "fanciers" like Tillotson, because it throws only a few blooms and requires a little more care. When a vegetable or flower is dropped that way there is a real danger of it vanishing from the face of the earth.

Now there is one remaining great seed company still owned—— at time of writing—— by the founding plantsmen: George W. Park Seed Co. Inc., of Greenwood, S.C. 29647. They still carry long "uneconomical" lists in which you can find wondrous things. (Although they too are tightening up, but far less.) Their announced policy is to hold on, to keep the non-supermarket varieties going. I thought you would like to know this, in case you feel moved to mention seeds again. Perhaps I should add that I have no interest in any firm, seed or otherwise, and am merely a long-time gardener. (With a wonky typewriter.)

Very best to you and so glad W.E. is going on.

Alice B. Sheldon
McLean, Virginia

W. Atlee Burpee Co.

Dear Ms. Cokeley:

Thanks for your note of April 22nd, 1974. The letter from Alice B. Sheldon is fascinating.

It proves that a little knowledge is a dangerous thing.

In 1970, the W. Atlee Burpee Company was purchased by General Foods Corporation (Jello-Post Cereals-Gaines Dog Food-Shake and Bake-Maxwell House Coffee, etc.). The basic reasons for the sale, at least on the part of General Foods, was that they are oriented to the home market, the housewife, the homeowner, suburbia, etc. They felt that Burpee, with its excellent reputation in the home garden market, would complement their excellent reputation in the supermarket and on the dinner table.

I am not sure that I know exactly what Burpee's point of view was, but David Burpee, as majority stockholder presumably had reasons best known to him. He had been running the company for nearly 50 years, with approaching 80 years of age, and I think honestly felt that new ideas, new blood, and new concepts might be beneficial to the company, in view of the ever growing home garden market.

From our point of view, it has been an excellent arrangement, since General Foods has brought new business know-how to us, has expanded markets, has increased research, and we look for even better progress along these lines in days to come.

Alice Sheldon mentions "ITT", and indeed ITT did buy a seed company——O.M. Scott & Sons, the grass seed people. How that has worked out, I do not know. Scott isn't terribly strong in the western states, so we do not always see them at their best. I have heard that the marriage isn't working too well.

Alice Sheldon also mentions the many other seed firms who are owned now by "non-plantsmen", and in this respect she is somewhat correct. Asgrow Seed Company is owned by Upjohn, Ferry-Morse Seed Company by Purex, and there are others like this.

Whether that's bad or good, is hard for me to say.

I would have to agree with her on one thing—— the George W. Park Seed Co. is a good seed company. They are small, but they have been growing. Unfortunately, they haven't really been growing under the guidance of a "plantsman". George Park, the founder, died a number of years ago. The company was carried on by his son, George Park, and tragically George Park and his wife died in an airplane crash a few years ago. The company is being run by Bill Park, another son, who wasn't really involved in the business too much up until his brother died. Bill, I don't believe, is a stockholder of major proportions, and the company will pass to George Junior's sons in the not too distant future. What then will happen to Bill, who is a terrifically good administrator, I don't know.

Park's business is small enough that he can continue to offer many of the non-popular varieties. Unfortunately, as his business grows, he is finding that he too has to cut down on some of the slow sellers.

Park, of course, does not do any growing on its own, but instead buy from the rest of the producers, including Burpee, Asgrow, Northrup-King, Bodger, Ferry-Morse, Goldsmith, etc.

Anyway, it was an interesting letter, and I appreciate your thinking of us.

Sincerely,
W. Atlee Burpee Co.
Gerald F. Burke,
Vice President

In the physical world, one cannot increase the size or quantity of anything without changing its quality. Similar figures exist only in pure geometry.

—Valery

A corporation cannot blush.

—Ascribed to Howel Walsh

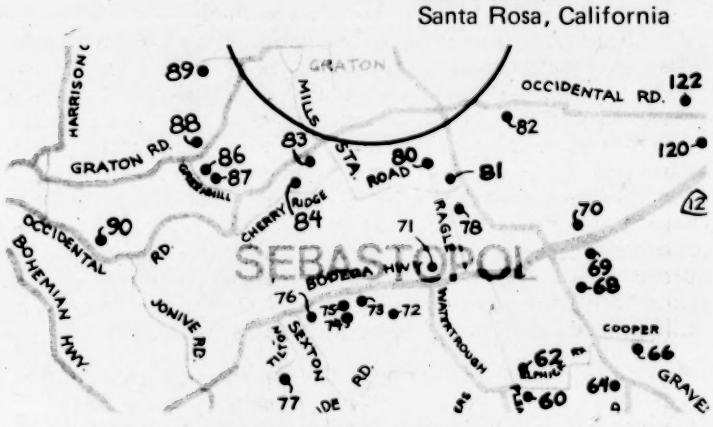
A Different Farm Co-op

Enclosed is a suggestion for the Epilog-- "Sonoma County Farm Trails" (P.O. Box 6043, Santa Rosa, CA 95406).

Its a loose organization of 150+ small and large farmers in Sonoma County. A map is published yearly (enclosed is last years, this yrs should be ready in another month or so) and widely distributed. You can go to these farms most any time thru out the year and buy their products. I think its a good idea for two reasons: a) you can buy good, fresh stuff you can't always get in the stores-- and frequently cheaper, too. b) Its an example of a semi-coop for people with land who want to grow things and need a way to market it.

If you live in N. Calif. or might be traveling this way, you should write and get a copy of the map (free). It will give you a good days adventure and you'll meet some nice people.

—Jack Rodwich
Santa Rosa, California



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7677 Occidental Road, Sebastopol 95472
Brown eggs, red hens, weeder geese, wild mallards, cherries, Christmas Trees, Mayten trees, Comfrey plants
All year, daily except Monday and Tuesday.

83 CHERRY HILL ORCHARD – (707) 823-2758
D. Moore "Calif. Certified Organic Farmer" by Rodale Press.
9715 Occidental Road, Sebastopol 95472
Organic apple juice, apples, cherries, pears, vegetables
June through October – daily.

84 SILVA BROS. PACKING HOUSE – (707) 823-4821
10020 Cherry Ridge Road, Sebastopol 95472
Apples, candied apples
July – March, daily except Sundays.

86 JAMES FARM – (707) 823-4769
2477 Green Hill Road, Sebastopol 95472
Apples; Gravensteins, Jonathan, Rome, Red Delicious
July 15 to December – daily.

87 STEWARTS – (707) 823-3729
2401 Green Hill Road, Sebastopol 95472
Blueberries, raspberries, corn, boysenberries
June 15 to August 1st and September 15 to November 1st – daily.

88 REDWOOD ORCHARDS
Robert Walker
11650 Graton Road, Sebastopol 95472
Apples, juice tasting room, picnic area
July 15 – November, daily.

89 WALKER APPLES – (707) 823-4310
P.O. Box 220, Graton 95444 (end of ½ mile scenic dirt road)
Apples; 15 varieties, cider, apple novelties
September 8 to November 18th – weekends.
"Try before you buy."

Quickies

• **Stihl chainsaws** *are the best of all chainsaws, says Don Kinch of Santa Cruz, CA, and everyone else, including J.D. Smith on p. 104 of this issue. Therefore we should repeat (from Spring 74) Paul Harsch's deal for CQ readers-- free freight and free chain ($25 worth) for Stihl chainsaw orders to:*

Mountainside Power Equipment
Box 11
Pownal, VT 05261

• **Gravely Tractors** *are as superb as ever, says Mark Harris of Green Mountain, NC, BUT the attachments (power take-off, hitches, etc.) are extremely slow in delivery, approaching never.*

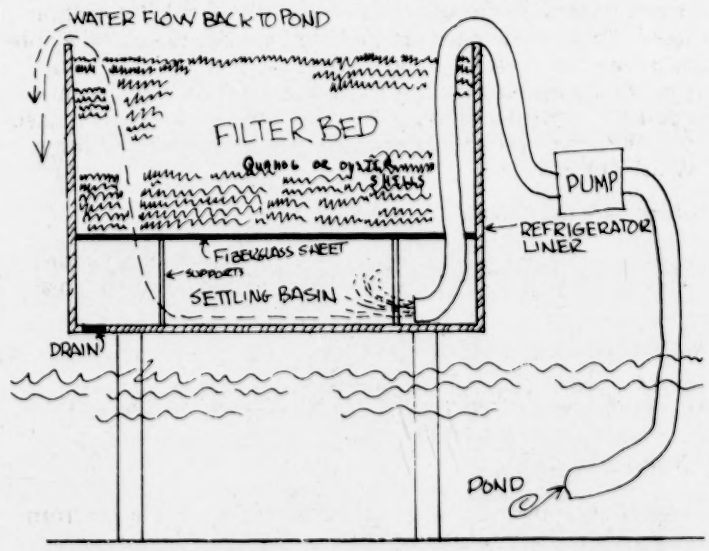
• **The Elm Research Institute**, *Harrisville, NH 03450, has information on preventing Dutch elm disease-- involves injecting Benlate into tree in combination with selectively spraying and trapping the beetle. So says July 74 Audubon Magazine.*

• **Best typo** *we've made in a while-- Andrew Main typesetting the title of a hydroponic book, "Gardening Without Soul". Er, "Soil".*

• **The New Alchemists'** *new edition of their* **Journal** *has an extended article called "Walton Two: A Complete Guide to Backyard Fish Farming". It details the entire process from pond to plate of generating maximum delicious protein in minimum time, space, and cost. The* **Journal** *subscription costs $25/yr from:*

The New Alchemy Institute
P.O. Box 432
Woods Hole, Massachusetts 02543

—SB



Fish pond filter —Journal of the New Alchemists

Homestead Schools

There's 3 I've got some stuff from but haven't been to any of em or know anyone who has. Maybe they're worth the time and money if you feel unskilled and unsure; if I had time and money and less work to do right here, I know there's a lot I wouldn't mind learning without having to always find it out the hard way. Books are OK, neighbors too, but sometimes you do wish it'd be like high school where there's a guy tellin and you get to ask???? Anyways, here's the 3 schools:

School of Living, Heathcote Rd., Freeland, Md. 21053 Their catalogue shows seminars and conferences at both practical and philosophical levels. The practical stuff includes a 2-week tree school for $100, some 2 and 3 day seminars (alternative energy, arts & crafts), and a 3-week seminar that covers most everything from growin food to land trusts. Looks like you get to practice most everything that's preached.

Draft Horse Institute, Indian Summer Farm, Cabot, Vt. 05647 Looks pretty structured and intensive, and not cheap, but their printed stuff gives you the feeling that it won't be a waste of time. Emphasis on draft horses and workin with em, but other homestead skills including a 2-week maple sugaring course, pole building construction, livestock practices, wall building, and a few others. The courses seem long enough to really give some expertise, and a chance to do what you're taught is emphasized. Looks professional.

The Christian Homesteadin Movement, Oxford, N.Y. Have several Homesteading Weeks a year, that covers fundamentals, but the schedule looks like you'd never get enough time to go too deeply into anything. They also offer weeks in herbalism, home childbirth, and log cabins. The cost is only $30, with $25 refunded at the completion of the entire week. Looks small, intimate, funky.

Karl Winer
Gilmanton, New Hampshire

Don't Bug Builders

Lloyd Kahn, Steve Baer, and others who live in innovative structures are constantly harassed by uninvited visitors.

"Hi. We'd like to see your dome."

"I'm sorry. I've had to keep some time for myself and family, so no visitors . . ."

"But we came all the way from Massachusetts. Couldn't we just look around? We won't bother you."

"I LIVE here. Today's Sunday. You never wrote or called at my office. How can you stand there bothering me and tell me you won't bother me!"

"I see what you mean. But since we're here anyway—— I do apologize—— can't we . . .?"

"Look. This is the fourth time this weekend, so I haven't much patience left. You're intruding. Goodbye."

"Well, if that's the way you . . . [slam!] That son of a bitch, who does he think he is?"

—SB

A builder's sources

Ed Allen teaches architecture at MIT, has done a good deal of building, and is author of the fine book **Stone Shelters**. *I wrote Ed, asking his ideas on a self-taught course in design and building. Here is his reply:*

—Lloyd Kahn

If I had to design and build a house from scratch, without my training, I'd want the following books:

A. Building on the earth:

Brainerd, John. **Working With Nature**. New York, Oxford U. Press, 1973. This is a comprehensive how-to, written by a biologist, on how to turn the natural landscape and its complex life cycles to your own purposes, without messing things up. $15, well worth it.

Olgyay, Victor. **Design With Climate**. Princeton, N.J., Princeton U. Press, 1970. How to bend the wind and sun, sympathetically. Relates human physiology and comfort to climate.

B. Design:

First, I'd spend a few days looking at local utilitarian buildings in detail, and asking "Why?"

Thoreau, Henry David. **Walden**. "What of architectural beauty I now see, I know has gradually grown from within outward, out of the necessities and character of the indweller, who is the only builder,—— out of some unconscious truthfulness, and nobleness, without ever a thought of the appearance; and whatever additional beauty of this kind is destined to be produced will be preceded by a like unconscious beauty of life." (and lots more good stuff like this)

Kahn, Lloyd, ed. **Shelter**. Hard to classify, but it's a good consciousness-raiser concerning design in general.

C. How to build it:

Engineering calculations (both structural and site): The series by Harry Parker.

Heavy construction: Navy book [Basic construction techniques for houses and small buildings, simply explained. U.S. Navy, 1972. Publisher: Dover.]

Framing: Anderson, Wood-Frame House Construction

Plumbing: Day

Wiring: Richter

More advanced systems: ECOL Operation

All these are in your **Shelter** bibliography.

Things to avoid:

1) Domes, yurts, teepees, zomes (not so bad, actually). Preconceived, arbitrary shapes into which you must try to cram your life. A house should wrap comfortably around a set of living patterns.

2) Rex Roberts: Good on design philosophy and method, but his designs are uninspired at best, and there are a number of glaring and misleading technical errors. His multi-layer foil walls and roofs are not up to good insulation standards (I calculated their insulation values myself, which he was unwilling to do for his readers, apparently.) His notions on acoustics are totally wrong in several instances. He doesn't understand the difference between radiant and convective heat transfer, which leads him to make some bad recommendations for south-facing glass. All of which is pretty strange for a guy who talks of an engineered house.

3) Ken Kern: Nice guy, good books, but not for the first-time builder. Too confusing an array of bright ideas. The genius of **Shelter** is in the simple, beautifully-drawn sheds that are an easy way to get the house underway. After a shed or two is up, then read Kern.

Poetry is certainly something more than good sense, but it must be good sense . . . just as a palace is more than a house, but it must be a house.

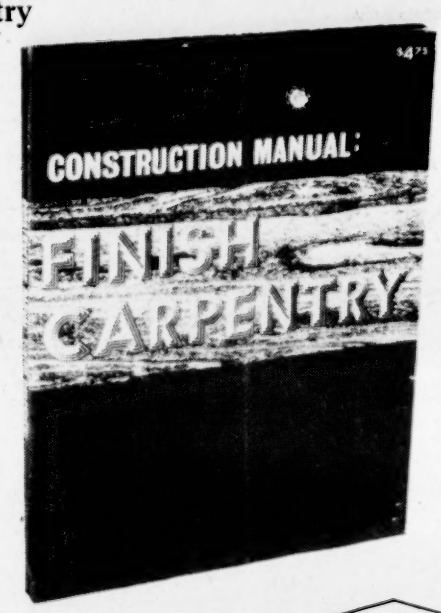
—Coleridge

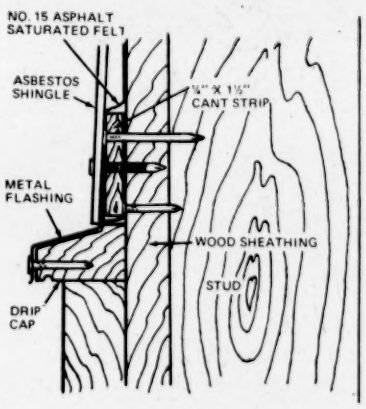
Construction Manual: Finish Carpentry

This is where most of our heroic builders lose interest —— the spectacular framing is over. Now it's the laborious details of roofing, windows, doors, trim, stairs, cabinets, etc. Here at last is a good book for getting that part right, so the house works.

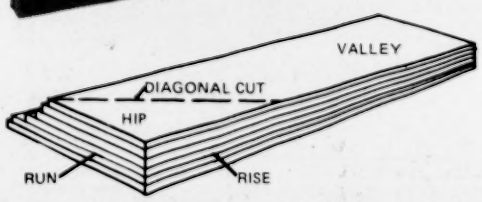
—SB

Construction Manual: Finish Carpentry
T. W. Love
1974; 192pp.
$4.75 postpaid
from:
Craftsman Book Company of America
542 Stevens Avenue
Solana Beach, CA 92075
or Whole Earth

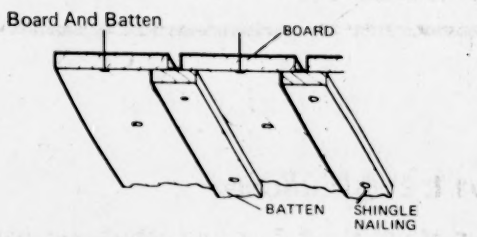


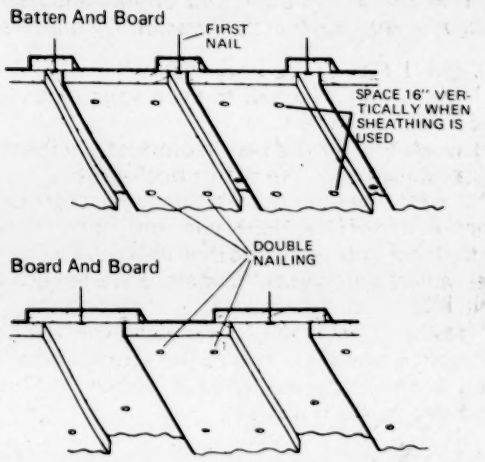


Flashing For Asbestos Siding
Figure 11-43



Method Of Cutting Hip Or Valley Shingles




Batten And Board
FIRST NAIL
SPACE 16" VERTICALLY WHEN SHEATHING IS USED
DOUBLE NAILING
Board And Board
NOTE: NAIL FOR FIRST BOARD - 8d OR 9d
NAIL FOR SECOND BOARD - 12d

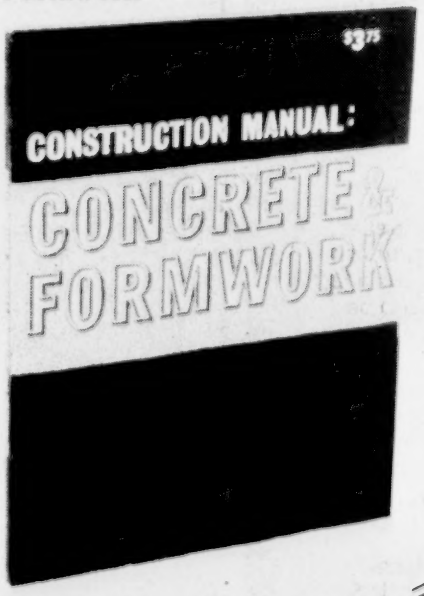
Vertical Board Siding

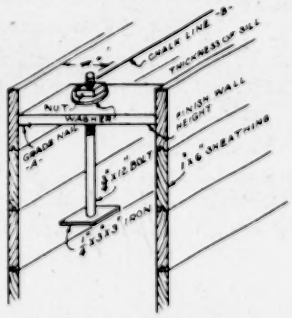
Construction Manual: Concrete & Formwork

This replaces all other concrete books we've seen. I wish I'd had it when Lloyd Kahn and I built a foundation on a steep grade last summer.

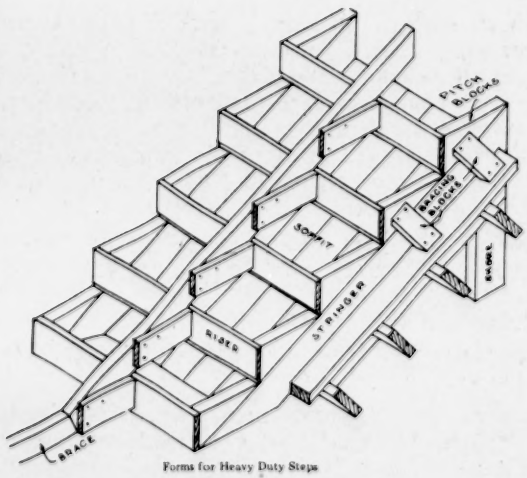
—SB

Construction Manual: Concrete & Formwork
T. W. Love
1973; 176pp.
$3.75 postpaid
from:
Craftsman Book Company of America
542 Stevens Avenue
Solana Beach, CA 92075
or Whole Earth





Detail of Suspended Anchor Bolt



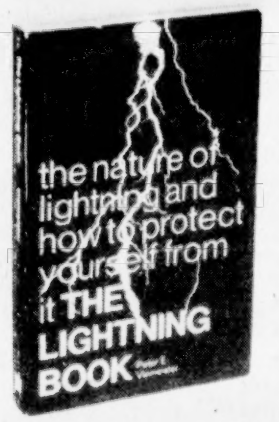
Forms for Heavy Duty Steps

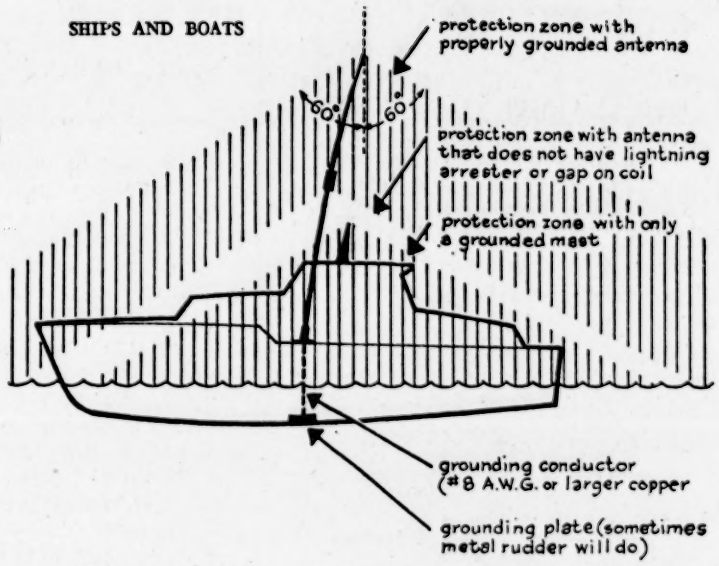
The Lightning Book

A thorough book covering most of the same material in "Lightning Protection" [EPILOG, p. 519] at a much more reasonable price.

–J. Baldwin

The Lightning Book
(The nature of lightning and how to protect yourself from it)
Peter E. Viemeister
1972; 316pp.
$1.95 postpaid
from:
The MIT Press
28 Carleton Street
Cambridge, MA 02142
or Whole Earth




SHIPS AND BOATS
protection zone with properly grounded antenna
60°
60°
protection zone with antenna that does not have lightning arrester or gap on coil
protection zone with only a grounded mast
grounding conductor (#8 A.W.G. or larger copper
grounding plate (sometimes metal rudder will do)

Electrical shock can make a person stop breathing. Both alternating current and a short pulse of direct current, such as might be produced by lightning, can cause temporary paralysis of the nerves that control the action of the lungs. If someone near you is knocked unconscious by lightning, check to see if he is still breathing. Even if he is not, he may recover if you act promptly. Start artificial respiration immediately.

Sawdust stove

If you have access to free sawdust, you can build a stove to use it from a 55-gallon drum. Details from Northeastern Forest Experiment Station, Upper Darby, PA 19082. (Item sent by Christopher Caldwell at Workbench Magazine.*)*

–SB

Mexican water heater

Dear Folks,

I am looking for some information about a particular method of heating water with wood. Thought you might know something about it or maybe how I can find out more. I'm refering to water heaters that I used while living in Mexico–– and I assume that they are manufactured there (I'd love to know the name and address of the company!)–– anyway the water heater worked something like this:

The whole thing sat off the floor on three legs (or four) and consisted of a small fire bed with a tall cylindrical flue to the outside, surrounded by a cylindrical, water-filled jacket/chamber with the expected inflow pipes in the bottom and hot water outflow at the top. By building a small, hot fire we could heat 15-20 gallons of water in as many minutes, and warm the bathroom in the process. It took up very little space in the bathroom and worked beautifully for a couple of showers per fire–– and no energy was used keeping water hot when it wasn't needed.

I'd like to have such hot water heaters in the house my husband and I are building in Vermont. If you can help me get more information, I would appreciate it–– I'm enclosing a self-addressed, stamped envelop for your reply. If by some chance I find out more info, I'll send it to you, since I think your readers may be interested.

–Sue Hibbert
Silver Spring, Maryland

Filling the inner barrel with sawdust. Note the wooden insert in the center. To pack sawdust in the barrel tightly enough, it should be tamped down.

Soft Technology

Soft Tech Defined

Thirty-five characteristics and counter-characteristics borrowed from **AD** *magazine (July '74) who borrowed the list from a book by David Dickson (we're still tracking it down) who borrowed the material from Robin Clarke, who . . .*

—SB

Illustration borrowed from **Undercurrents**

Some Utopian Characteristics of Soft Technology (Robin Clarke)

	'Hard' technology society	*'Soft' technology society*
1	ecologically unsound	ecologically sound
2	large energy input	small energy input
3	high pollution rate	low or no pollution rate
4	non-reversible use of materials and energy sources	reversible materials and energy sources only
5	functional for limited time only	functional for all time
6	mass production	craft industry
7	high specialization	low specialization
8	nuclear family	communal units
9	city emphasis	village emphasis
10	alienation from nature	integration with nature
11	consensus politics	democratic politics
12	technical boundaries set by wealth	technical boundaries set by nature
13	world-wide trade	local bartering
14	destructive of local culture	compatible with local culture
15	technology liable to misuse	safeguards against misuse
16	highly destructive to other species	dependent on well-being of other species
17	innovation regulated by profit and war	innovation regulated by need
18	growth-oriented economy	steady-state economy
19	capital intensive	labour intensive
20	alienates young and old	integrates young and old
21	centralist	decentralist
22	general efficiency increases with size	general efficiency increases with smallness
23	operating modes too complicated for general comprehension	operating modes understandable by all
24	technological accidents frequent and serious	technological accidents few and unimportant
25	singular solutions to technical and social problems	diverse solutions to technical and social problems
26	agricultural emphasis on mono-culture	agricultural emphasis on diversity
27	quantity criteria highly valued	quality criteria highly valued
28	food production specialized industry	food production shared by all
29	work undertaken primarily for income	work undertaken primarily for satisfaction
30	small units totally dependent on others	small units self-sufficient
31	science and technology alienated from culture	science and technology integrated with culture
32	science and technology performed by specialist elites	science and technology performed by all
33	strong work/leisure distinction	weak or non-existent work/leisure distinction
34	high unemployment	(concept not valid)
35	technical goals valid for only a small proportion of the globe for a finite time	technical goals valid 'for all men for all time'

Energy Primer

Yes, folks, there really is an **Energy Primer**. *(See EPILOG p. 527.) A joint project of the Whole Earth Truck Store, New Alchemy West, Ecology Action/ Palo Alto, and Alternative Sources of Energy Newsletter, it has been in production for a year. There's a little for everybody in it—— introductions to the principles of solar, water, wind and bio-fuel energy, book reviews, hardware descriptions and source information, annotated bibliographies, and so on. Each section reflects the special problems of reporting on the various energy sources, as well as the individualities of the four editors involved. Almost uncomfortably jammed with information, we're quite happy with the way it turned out. The Contents look something like this:*

Topic	Pages
Solar	48
Water	22
Wind	32
Aquaculture	13
Methane	8
Alcohol	6
BioMass	8
Agriculture	11
Wood	13
Architecture	14
Integrating Energy Systems	15
Introduction, Index, Misc.	10
Total	200

It's available now! Help us out, ask your local bookstore to stock it.

—Chuck Missar,
Energy Primer editor

Energy Primer
1974; 200pp.
$4.50 USA; **$5.50** Elsewhere; **$2.00** Microfiche
from:
Whole Earth Truck Store
558 Santa Cruz
Menlo Park, CA 94025

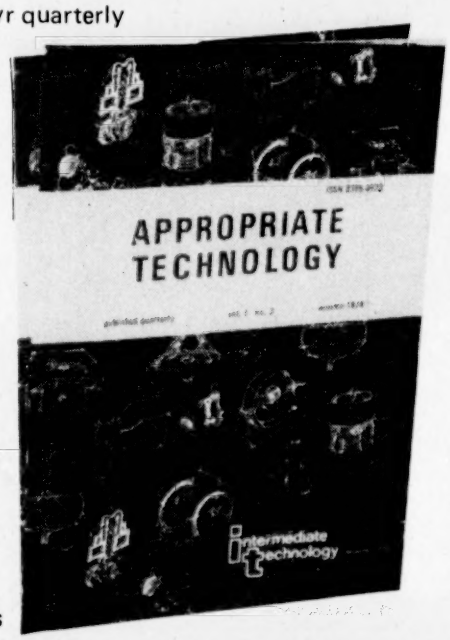
Appropriate Technology

We mentioned this new periodical in the EPILOG (p. 534), but now that we've seen a few issues it's worth saying more, and more enthusiastically. Better even than the **VITA Handbook** *(CATALOG, p. 68) this quarterly is about ingenuity with basic requirements and basic materials. There's no fat in the publication. It's all new, and it all is working.*

—SB

Appropriate Technology
Frank Solomon, ed.
£3.50 ($US 8.50) /yr quarterly

from:
Intermediate Technology
Publications Ltd.
9 King Street
(Covent Garden)
London W.C.2, U.K.



C.O.S.I.R.A. Publications

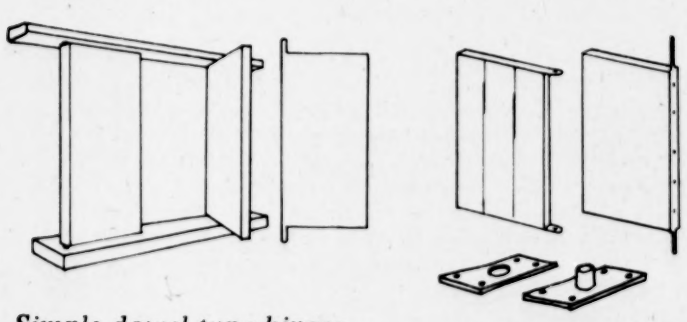
The British government-sponsored Council for Small Industries in Rural Areas, London, publishes a large selection of both technical and general booklets and leaflets. Titles available include "The Blacksmith's Craft", "Fabricating Simple Structures", "The Thatcher's Craft", "Design for Mobile Shelter", and "Motorising of Hand Screwing Machine".

Most of these publications are available at well under £1.00 plus cost of postage. Publications lists and other information are available from: COSIRA, P.O. Box 717, 35 Camp Road, Wimbledon Common, London S.W.19, England.

•

Window and Door Openings

Where conventional windows and doors are required, the cost of framing them is considerable. One cost-cutting technique is to eliminate the vertical members of a door or window frame; the horizontal members may be built into the brickwork, and the window or door provided with simple dowel-type hinges—— a traditional Kerala method, nowadays forgotten. And if windows would only be shut for security reasons when a room was empty, then a glass shutter is unnecessary, and can be replaced by a simple leaf of planks and battens.



Simple dowel type hinges

The bicycle transporter

"Transport Bicycle" from Tanzania

A simple solution to the high cost of local transport of all types of goods, which is equally effective over roads, track and rough terrain, has been developed by the Dar es Salaam Liberation Support Group, P.O. Box 2099, Dar es Salaam, Tanzania. A descriptive booklet with construction plans and photographs is available from this address.

•

Oxfam Designs a Spinning Wheel for Lesotho

In Lesotho, the village mohair and wool spinning industry has been handicapped by the exorbitant price of imported spinning wheels and lack of spare parts for these machines.

A project was initiated by C. Howse, Oxfam Field Director for Southern Africa, to produce a low-cost spinning wheel that could easily be made by persons with a minimum amount of skill, minimal tools and from easily available materials. The majority of these considerations were fulfilled, but in developing the prototype, certain compromises had to be made in the tools and processes necessary to make a sturdy machine, and in the materials used.

The spinning wheel consists of a wooden frame with various parts made of metal tubing, wire, concrete, hardboard and bicycle spares. The machines were tested in the field, modified and improved, and they now produce yard of comparable quality to that spun on imported spinning wheels.

More information can be obtained from Mr. Howse, P.O. Box 1363, Blantyre, Malawi.

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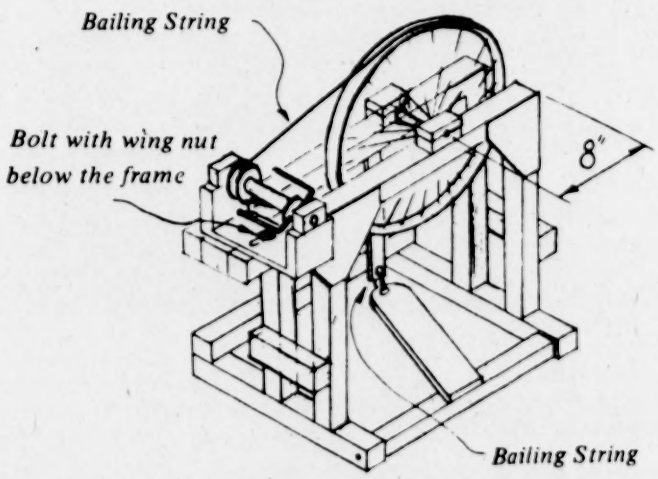
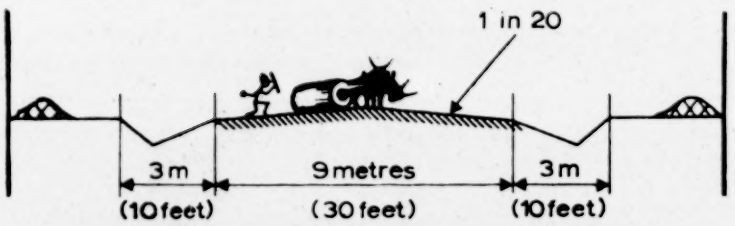


HOW TO MAKE A SIMPLE EARTH ROAD

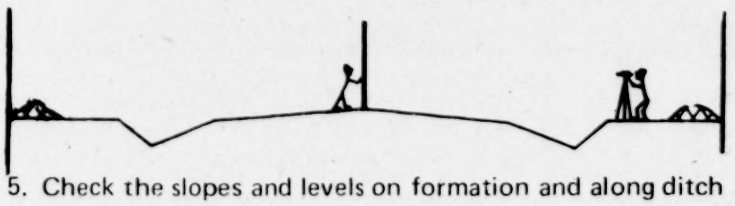
1. Clear trees, brushes and roots. Clear trees far enough to keep keep road in sunshine.

2. Strip off topsoil for at least 8 metres from centre of road.

3. Dig wide ditches and dump sub-soil towards centre line to raise road level.



4. Complete the ditches and roll, compact the formation using minimum slopes and widths shown.



5. Check the slopes and levels on formation and along ditch to make sure that water can run away.

6. Lay the topsoil on the ditch slopes to encourage grass to grow again.

Now MAINTAIN IT

keep drains clear • fill in holes • maintain slopes

Energy for Survival

Here's the first and last paragraphs from the review of this book by Roger Douglass in the **Energy Primer**.

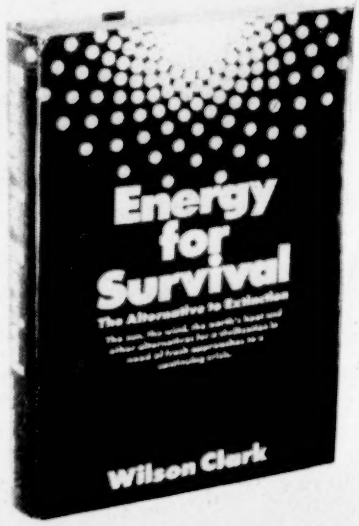
Wilson Clark has done a superb job of assembling up-to-date energy information and using it to tell a comprehensive story on a largely non-technical level. Many readers will feel the main value of the book lies in its conservationist-ecologist views of energy use and development. It is also an extensive information source, as well as a guide to sources. About one thousand references are given. The book covers the history, sociology, politics, and corporate structure of energy and its use, as well as technical and environmental aspects.

This book is a veritable who's-who and what's-what of "new" energy technology. Fossil-fuel and energy conservation processes are extremely well covered, and a better guide to developments in solar and wind energy probably doesn't exist. The book is well worth its price for this alone.

It is a long, well done, easily read book that should be required reading for any energy related college course. Look for a paperback version to come out in late 1975.

—Chuck Missar

Energy for Survival
Wilson Clark
1974; 652pp.
$12.50
from:
Doubleday & Co., Inc.
501 Franklin Avenue
Garden City, NY 11530
or Whole Earth



The reason heat pumps are not in wider use today is twofold: First, the reputation of unreliability has haunted the electric heat pump since its premature introduction on the commercial market in the 1950s. Additionally, since the improved heat pumps have become available, virtually no attempts have been made nationally by electric utilities, manufacturers, or retail outlets to inform the public of their superiority—— or even of their existence. This blackout of advertising is astounding in the light of the heat pump's remarkable efficiency and the fact that the initial cost of central home heat pump installations are rarely more than 10 to 20 percent more expensive than those of conventional central air-conditioning system. Assuming the higher operating expense of home electric heating equipment, it is quite possible that heat pumps are cheaper in most areas than the combined cost of a central air-conditioning and heating system; and the operating costs of the heat pump will save an average of two thirds of the yearly electric power bill—— while using one third the energy of the common electrical resistance heating system.

•

Lead-acid batteries (originally called accumulators) that store wind-generated electricity chemically are the most dependable form of energy storage for a small system, and they can go through thousands of cycles (charging and discharging) without significant deterioration. However, the batteries are expensive. A full set of batteries for household energy storage may cost $500 to $1,500 in a complete wind power plant system having only a few kilowatts' capacity. Depending on their storage capabilities, the batteries may cost as much as the wind generator itself.

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Solar Energy and the Flat Plate Collector: An Annotated Bibliography

I don't know how it came about, but Francis de Winter and the Copper Development Association have formed a useful partnership. First, CDA published de Winter's **How to Design and Build a Solar-Energy Swimming Pool Heater.** *This book covers the physics, economics, and construction details of solar collectors quite well. (I don't think the words "aluminum" or "galvanized iron" appear once in the approximately 100 page book. . . .) More recently, CDA published* **Solar Energy and the Flat Plate Collector: An Annotated Bibliography.** *About half of this booklet is devoted to an excellent treatment of the development of design and understanding of flat plate collectors. Working chronologically from the time of the reputed invention of the flat plate collector in the second half of the 18th century, de Winter names the names and gives the dates for significant advances in the field. (If one were to use this report in conjunction with the solar patents list in Daniels' and Duffie's* **Solar Energy Research** *(out of print), it would be possible to get an extremely good historical perspective of solar energy development.) The booklet ends with a bibliography/reference list of 119 solar related articles—— probably the best medium length solar bibliography I've seen.*

—Chuck Missar

How to Design and Build a Solar-Energy Swimming Pool Heater
Francis de Winter
1973; 99pp.

Solar Energy and the Flat Plate Collector
(An Annotated Bibliography)
Francis de Winter
1974; 29pp.

Free
from:
Copper Development Association Inc.
405 Lexington Avenue
New York, NY 10017

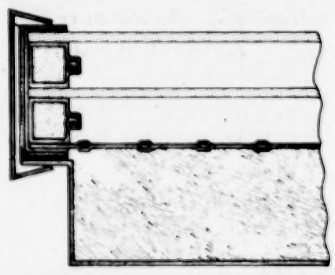
PPG Baseline Solar Collector

A major corporation finally gets into the game with these panels. They claim that 20 of these will provide about 80% of the heating and hot water needs of a "typical 2000 sq. ft. home". But note that costs of crating, shipping, anti-corrosion treated fluid, installation, and heat storage are not included in the price. [The panel price is rather typical, and you couldn't do much better yourself.] Extensive durability tests have not yet been made, and my own reading and experience makes me suspicious of certain details. Nonetheless, it's good that these are available and they're use will certainly help bring practical solar heating closer.

—J. Baldwin

PPG Baseline Solar Collectors about $150-$170.00 per 18 sq. ft. panel.

Information from:
R. R. Lewchuk,
project manager
New Products Development
PPG Industries Inc.
One Gateway Center
Pittsburgh, PA 15222



PPG's prototype Baseline Solar Collector is a flat plate-type collector, constructed with the following materials.
1. Unit Size—76-3/16" x 34-3/16" x 1-5/16".
2. Cover plates—two pieces of 1/8 inch HERCULITE® tempered glass.
3. Absorbing surface—PPG's DURACRON® Super 600 L/G (UC 40437) flat black coating.
4. Collector plate—"Roll Bond" Type 1100 aluminum solar absorber.
5. Insulating backing—3" backing of fiber glass.
6. Metal pan insulation housing available.
7. Edge retaining system—metal channel with desiccant-type glass edge spacers.

SolarSan Collector

In addition to producing the **Solar Energy Digest** *monthly, Wm. Edmondson is publishing reprints of good solar articles and marketing flat plate collectors. Classic Reprint No. 1,* **The Performance of Flat Plate Solar-Heat Collectors** *was first published in 1942 by ASME. Its 14 pages makeup one of the first rigorous examinations of flat plate collector design and performance. SED calls it "an old but highly authoritative classic paper."*

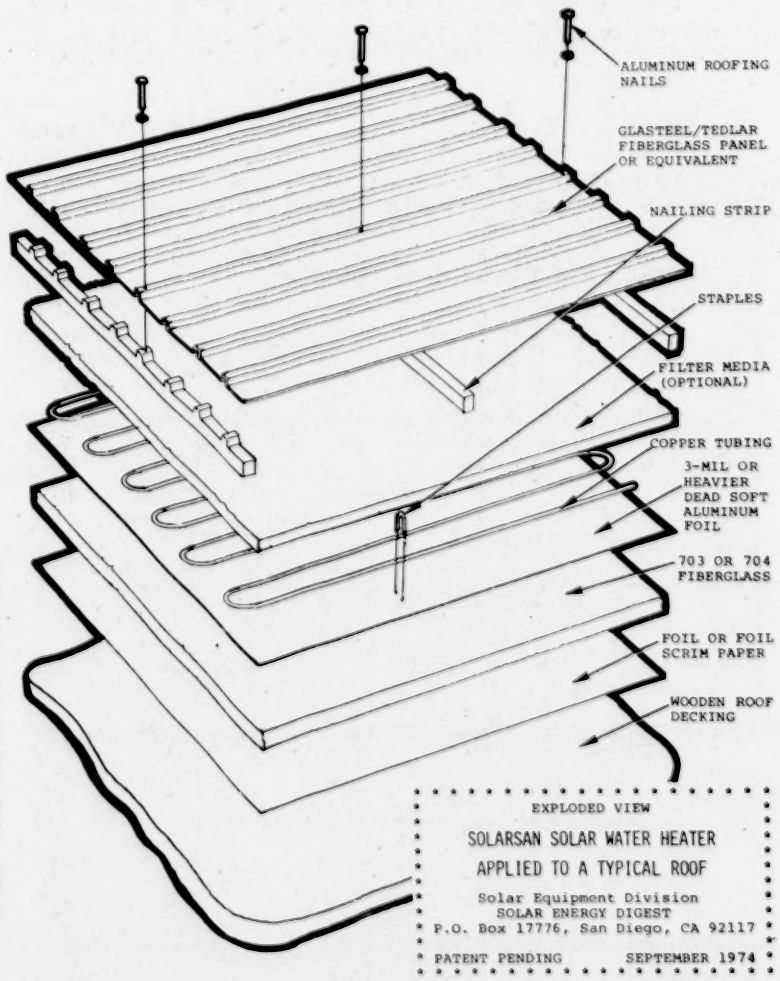
SolarSan is the tradename given to SED's new flat plate collectors. Just now going to production, these 5¾"x2'x8' panels will sell initially for $5/s.f. The panels (working sunnyside down) consist of a 4-mil Tedlar sheet over a 1" thick fiberglass air filter media over a black-painted absorber plate of ¼" serpentine copper coil (legs on 3" centers) over a 3-mil dead soft, reflective aluminum foil sheet over a 1" layer of 703 or 704 high density fiberglass board over ¼" of interior plywood over 4" of ordinary foil faced insulation . . . gasp . . . all served in a weather resistant wood box. Edmondson is interested in finding people willing to manufacture and sell SolarSans under license, or act as franchised dealers.

—Chuck Missar

The Performance of Flat Plate Solar-Heat Collectors
H.C. Hottell & B.B. Woertz
1942; 14pp.
$3.00

SolarSan Flat Plate Collectors
$80.00 each,
FOB San Diego, CA

from:
Solar Energy Digest
P.O. Box 17776
San Diego, CA 92117



A Universal Solar Kitchen

C.J. Swet is currently doing engineering development work on solar heating systems for Community Technology Inc. in Washington, D.C. He worked for many years at the Applied Physics Lab of Johns Hopkins University, and while he was there, he proposed the "Universal Solar Kitchen." His proposal has been around for over two years, and it's time it gets more attention. It's available from NTIS, and here's a quote from the Abstract.

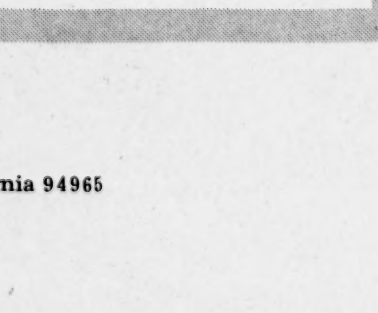
The basic design is adaptable to a wide variety of ethnic and regional domestic practices, is readily transportable, and requires no special skills for installation or use. A conceptual approach to the design of universal solar kitchens is presented, with nonrigorous indications of feasibility, performance, producibility, and cost. Two possible embodiments of the solar energy and its delivery to a convenient point of use or storage.

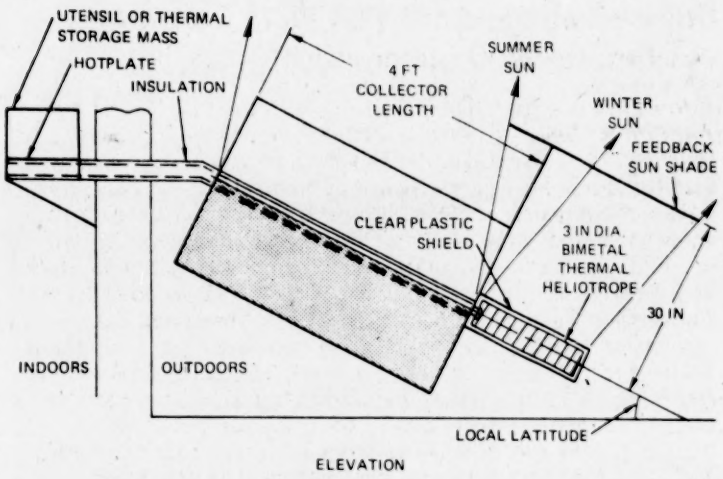
I understand Swet is currently "perfecting" the design of this kitchen idea. As for cost to underdeveloped nations, his comment is "certainly it would cost far less than a bomb."

—Chuck Missar

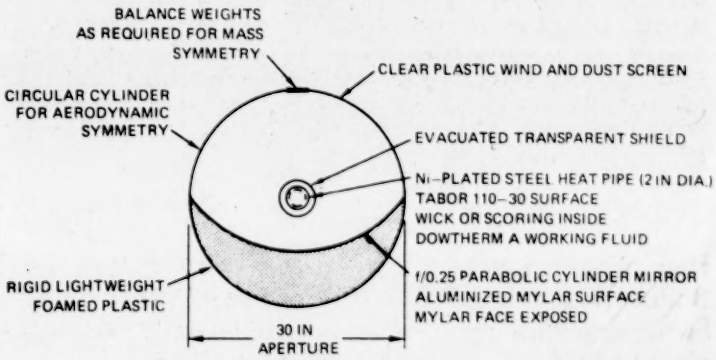
A Universal Solar Kitchen
C.J. Swet
1972; 23pp.
Order No. PB 213 023

$3.00
from:
National Technical
Information Service
5285 Port Royal Road
Springfield, Virginia 22161





ELEVATION


BALANCE WEIGHTS AS REQUIRED FOR MASS SYMMETRY
CLEAR PLASTIC WIND AND DUST SCREEN
CIRCULAR CYLINDER FOR AERODYNAMIC SYMMETRY
EVACUATED TRANSPARENT SHIELD
Ni-PLATED STEEL HEAT PIPE (2 IN DIA.)
TABOR 110-30 SURFACE
WICK OR SCORING INSIDE
DOWTHERM A WORKING FLUID
RIGID LIGHTWEIGHT FOAMED PLASTIC
f/0.25 PARABOLIC CYLINDER MIRROR
ALUMINIZED MYLAR SURFACE
MYLAR FACE EXPOSED
30 IN APERTURE

SECTION THROUGH COLLECTOR

Fig. 2 REPRESENTATIVE DESIGN

Mitre Solar Studies

The National Science Foundation flushed a lot of money in MITRE's direction to finance a study to "formulate, evaluate and recommend a 5-year Solar Energy Research Program. . . ." MITRE, a think tank kind of an operation, produced a 5 volume report, and I think two volumes might be useful.

The first is Vol. 2, **Systems Analysis of Solar Energy Programs —— Appendix: Research Tasks.** *Do you want an idea for a research project? This volume has 151 pages of them. Take your pick—— graduate research projects for the next 20 years.*

The second is Vol. 5, **Dissemination and Utilization of Solar Energy Research Results.** *"Thirty recommendations are made for establishing groups within, or reporting to, the NSF Solar Energy Program Office, and initiating activities for the dissemination and utilization of solar energy research results." Here's where the recommendations are made to make NSF financed R&D results available to you and me. Advisory commissions, information offices, visitor centers, training courses, public education, publications—— these are the types of things that solar energy activists must demand if we are to further decentralized, immediately accessible solar technology.*

—Chuck Missar

Dissemination and Utilization of Solar Energy Research Results
1973; 55pp.
Order No. PB 231 144
$3.75 Papercopy; **$2.25** Microfiche
from:
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161

Systems Analysis of Solar Energy Programs—— Appendix: Research Tasks
1973; 151pp.
Order No. PB 231 145
$4.75 Papercopy; **$2.25** Microfiche

A mirror has no heart but plenty of ideas.

—Chazal

Aluminum collectors

One of the country's most progressive solar energy hardware fabricators recently threw in the towel on using aluminum Roll-Bond® flat plate collectors. The reason? Corrosion. Olin-Brass, manufacturers of the Roll-Bond® units, is capable of turning out hundreds of thousands of square feet of these collectors a month at fairly reasonable prices. While many other collector fabricators are still using the Roll-Bond® panels, someone really has to beat the corrosion problem before Roll-Bond® can be given an unqualified recommendation. The Gratitude Of A Nation to the firstist with the bestist proven anti-corrosion scheme for these panels.

—Chuck Missar

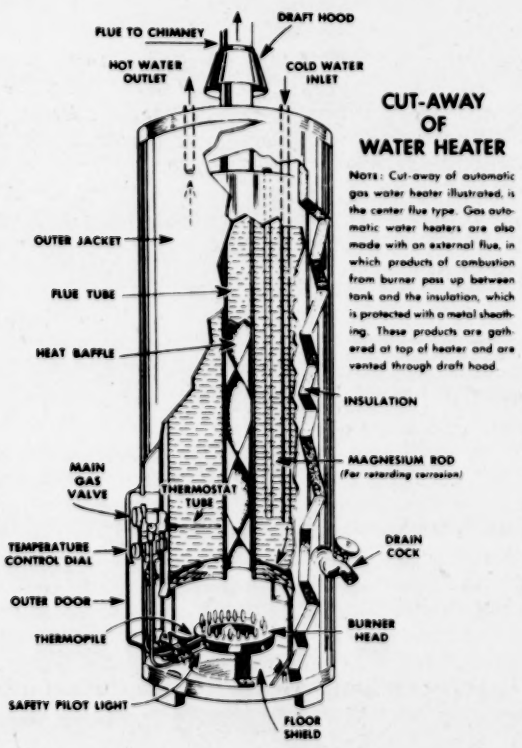
Appliance Service Handbook

Ogod, how many of these we've seen. This one's far the best—— most comprehensive, most readily usable. Household technology.

—SB

Appliance Service Handbook
George Meyerink
1973; 426pp.
$13.95 postpaid
from:
Prentice-Hall, Inc.
Box 500
Englewood Cliffs, NJ 07632
or Whole Earth

The Occupation of Service
Tools of the Trade
The Basic Approach
Installation
The Machine—A Box of Parts
Electricity at Work
Lubrication
Refrigeration
Air Control
Water
Servicing Techniques
The Gas Flame
Customer Relations
Room Air Conditioners
Blenders
Coffee Makers
Trash-Masher Compactors
Dehumidifiers
Dishwashers
Food Waste Disposers
Dryers: Electric
Dryers: Gas
Humidifiers
Incinerators
Electric Irons
Knife Sharpeners; Can Openers
Food Mixers
Probe-Control Cooking Appliances
Ranges and Ovens
Refrigerators
Toasters
Vacuum Cleaners
Automatic Washers
Water Heaters


FLUE TO CHIMNEY
DRAFT HOOD
HOT WATER OUTLET
COLD WATER INLET
CUT-AWAY OF WATER HEATER
Note: Cut-away of automatic gas water heater illustrated, is the center flue type. Gas automatic water heaters are also made with an external flue, in which products of combustion from burner pass up between tank and the insulation, which is protected with a metal sheathing. These products are gathered at top of heater and are vented through draft hood.
OUTER JACKET
FLUE TUBE
HEAT BAFFLE
INSULATION
MAGNESIUM ROD (For retarding corrosion)
MAIN GAS VALVE
THERMOSTAT TUBE
TEMPERATURE CONTROL DIAL
DRAIN COCK
OUTER DOOR
BURNER HEAD
THERMOPILE
SAFETY PILOT LIGHT
FLOOR SHIELD

Simplified Wind Power Systems for Experimenters

Here's a how-to-design-it book for wind machine neophytes that looks like it's organized logically and not too heavy mathematically. Written by an engineer accustomed to teaching inexperienced aerospace technicians, it relies heavily on simple graphs and example problems. In addition to the usual power required/power available calculations, it covers airfoil, mechanical, and structural design, the latter particularly well. Battery storage technology and electronic controls are not treated well.

This is not a design cook book full of plans, but rather a simple, graphic engineering text for those thinking about building their first windplant.

—Chuck Missar

Simplified Wind Power Systems for Experimenters
Jack Park
1974; 72pp.
$8.00
from:
Jack Park
Box 4301
Sylmar, CA 91342
or Whole Earth

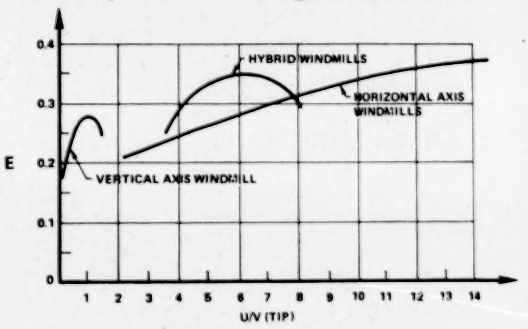
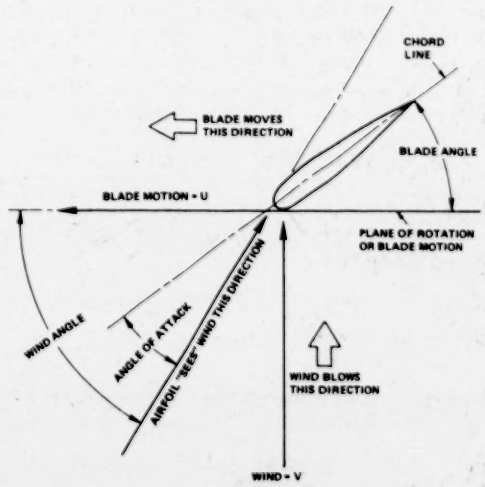


FIGURE 7 RELATIVE EFFICIENCY OF THREE WINDMILL TYPES



More on Wind

Dear People:

Two newly formed wind energy societies:

Wind Energy Society of America
1700 E. Walnut
Pasadena, CA 91106

American Wind Energy Association
11350 Schaefer
Detroit, MI 48227

Jacob's wind generators being rebuilt and sold by:

Northwind Power
Craftsbury Common, VT

Do you want to fund production of a wind energy "work book"?

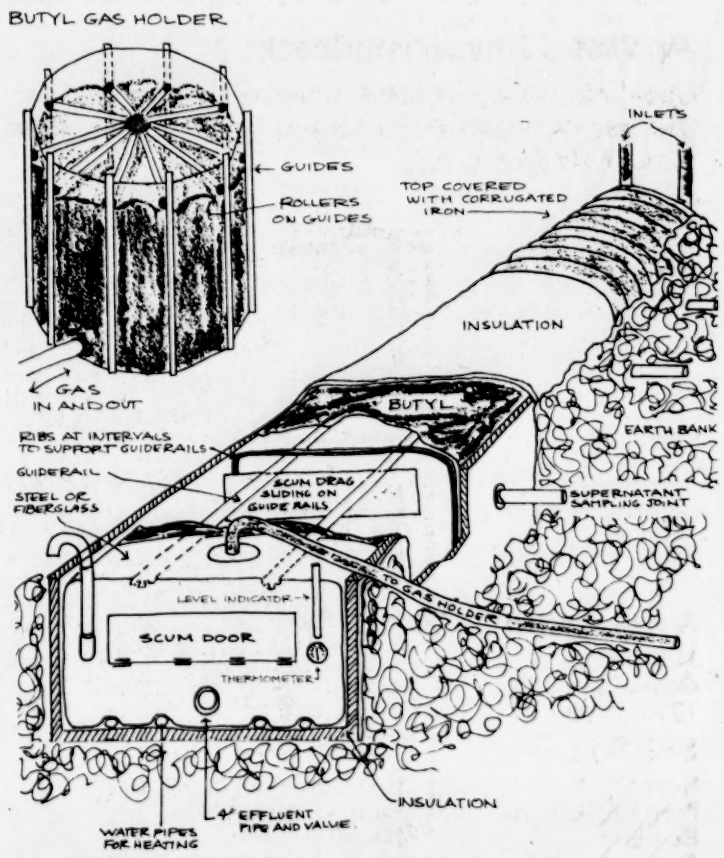
Best,
Ben Wolff
Windworks
Mukwonago, Wisconsin

Practical Building of Methane Power Plants

If I were considering working with Methane (and I am), this is the book I'd work from. Mr. Fry, you may recall, is the man who made a successful Methane system on an African hog farm. He's also worked with Mother Earth News and ASE [EPILOG, p. 540]. This book seems clearest, most detailed, and most into the little design solutions that must be right to make things actually work well. There's a good chapter on safety.

—J. Baldwin [Suggested by James Roberts]

Practical Building of Methane Power Plants
(For Rural Energy Independence)
L. John Fry
1974; 96pp.
$12.00 postpaid
from:
L. J. Fry
1223 North Nopal Street
Santa Barbara, CA 93103
or Whole Earth



Here is how I see the position: The anaerobic fermentation process is in its infancy, but by following the steps outlined in the book the reader can build a power plant right now—— and not wait 20 years to apply whatever refinements may possibly be uncovered in years to come. The widespread use of methane power plants could conceivably neutralize the threats of oil-exporting countries, and the third world would also stand to benefit on a massive scale.

However, as pioneers we need to communicate.

1) Would you subscribe, at a nominal fee, to a quarterly newsletter intended to gather and disseminate feedback from readers for the benefit of all?

2) Would you suggest any areas of the book that could be either added to or deleted in a second edition, or dealt with separately in a newsletter?

3) Do you have some special skill, energy or resource (contact with a sympathetic Congressman) to enable swift dissemination of the word so that a vast engineering effort can be initiated to promote construction?

Please write to me. I look forward to hearing from you and, believe me, the high point in my day is when the mailman brings word of another pioneer in the field of methane power plants. Meanwhile, welcome to the "fascination" of anaerobic digestion and remember, Always Be Careful. We have a reputation of safety to uphold.

Sincerely,
L. John Fry

N.T.I.S.

The National Technical Information Service (NTIS) of the US Department of Commerce is the information storage and dissemination ghetto of the government's scientific community. All unclassified NASA reports are available through NTIS, as are many NSF publications. Titles that might interest you can be found in **Scientific and Technical Aerospace Reports** *(STAR) published by NASA and* **International Aerospace Abstracts** *(IAA) published by the American Institute of Aeronautics and Astronautics. Most big city and university engineering libraries have these twice monthly publications on file.* **Energy**, *a Weekly Government Abstract, is available from NTIS. It abstracts new material received by NTIS related to all aspects of energy research and development.*

Almost everything that NTIS sells is available in both paper copy (PC) and microfiche (MF) format. NTIS recently raised its microfiche minimum price to $2.25—— no more 95¢ or $1.45 bargains. Microfiches are 4"x6" film transparencies that usually contain about 80 pages of text, recorded at a 24:1 reduction. You need a viewer ($100 and up) to read them for any length of time, although I use a Treck pocket microscope to pull off odd bits of information occasionally. We offered the **Energy Primer** *in microfiche format for $2.00 because we like the principle of being able to carry our entire library in a shoe box. Making reliable, low cost microfilm viewers is an untapped cottage industry.*

I have a real gripe with NTIS, though. There have been several instances recently when NTIS charged the same price for PC and MF versions of the same publication. I don't know why they've gone to this pricing structure, but it smacks of Big Brother Rip-Off to me. Why should 162 pages microfilmed (2 fiche, approx. cost 50¢) sell for $20.00, the same price as the 162 page papercopy version? The latter price is horrible enough. Complain, picket, write letters, get those MF prices down!

—Chuck Missar

Energy
A Weekly Government Abstract
$35 per year
from:
National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
(703) 321-8500

Solar Energy and Wind Power. A Bibliography with Abstracts.
Edward J. Lehmann, and Axel C. Ringe.
National Technical Information Service, Springfield, Va. Jul 74, 162 p NTIS-WIN-74-049
COM-74-11103/0 PS PC$20.00/MF$20.00

I take one of the central evils of our time to be the steady encroachment of universal liquidity, where everything is readily transferable into everything else, a relentless marketplace planet with everything for sale. Nothing remains truly native or isolate. It is all much too quick and connected and dangerously unstable.

Examine in this light the possibly healthful functions of difficult language translation, trade tariff, border official bribe, suspicion of strangers, or money exchange fee; of variant legal systems, ethical systems, measuring systems. Crossing each of those transitions involves a delay (good), a bringing to consciousness of otherwise unconsidered routines (good), a constant re-evaluation (good), another degree of complexity (good), a barrier to overspecialized efficiency, a "fringe" where life is always more abundantly diverse.

Universal liquidity is a barren sea.

Metricizing the world is a bad idea.

—SB

METRIC SYSTEM

PRO:

You can divide things by ten.

CON:

BY STEVE BAER

LET'S NOT SWITCH
TO THE METRIC SYSTEM

The Decimal system and its sidekick, the Metric system, are a smug pair. Ready to count or measure anything in the universe, they appear almost bored with the task. The world is filled with puzzles, contradictions and irrational occurences. Yet these two who appear on such occasions refuse to share in the embarrassment. A little rounding off—— perhaps a new symbol—— and they are on their way.

How does one go about registering a complaint about their manners? Even bringing up such an idea could lead to hours of patient explanation by mathematicians and engineers:

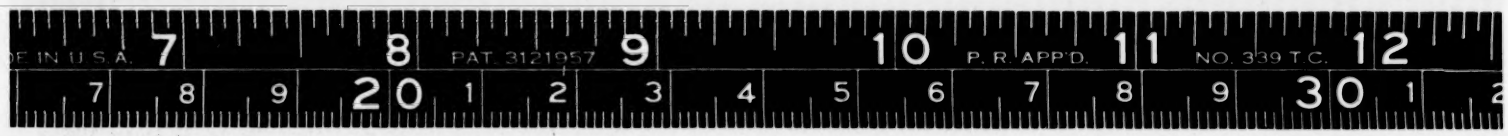
> "Mr. Baer, I am afraid you don't understand the basic idea of counting or the purpose and usefulness of measuring things. Why, how do you think the rubber in the soles of your shoes was manufactured—— how do you think the rivets in your Levis were made?

And so on and so forth. . .

I am trying to learn how to reply. What is the matter after all? How can you object to numbers or meters or kilograms or degrees centigrade?

One problem is that the Metric system is foreign. We didn't grow up with it. How could Americans ever talk about a hot day being forty degrees or driving at one hundred kilometers per hour. That's not what we say. And this is reason enough not to change. So what if forty degrees centigrade is the same as 104°F. It doesn't sound the same. In fact it is actually somehow just a little different.

Measurements are used in both descriptions and calculations. Because the Metric system makes it easier for people to do calculations is no reason for us to throw out our old English system. Let those who want to calculate, calculate. Let them solve their own problems without persistantly destroying our very language. A road sign reading in kilometers doesn't tell you any more than a road sign reading in miles. Perhaps you could sympathize with the shift to the Metric system if someone could lead you to an



enormous bureau where clerks were doing endless calculations—— inches to miles, ounces to tons. If you could see the victims of our outmoded English system you might finally relent. "Oh, all right—— I see the suffering—— we'll learn the new system, we'll go along with you."

Perhaps this was true in the past—— people did suffer. I suffered. It is hardly true today. Now we have the pocket calculators. They are cheap; they work well; they can convert anything to anything. You just press a few buttons. . . .

There is absolutely no reason to bend for the conveniences of the engineers and the bureaucrats—— they don't need our help. They have already helped themselves. Any effort on their part to make us convert is simply cruel and stupid. They only want their stamp of rationality spread to where it has no business. They want all of us to bow a little more deeply to them.

You know where the English foot came from—— it is the length of your boot. Maybe not exactly, but close. And the inch—— it is the width of your thumb.

Where did the meter come from? It came from the North Pole, before anyone had even visited the North Pole. The meter was originally defined as 1/10,000,000 of the distance from the equator to the North Pole.

Let the astronomers and scientists have their Metric system, but let's protect our own English system.

Not only does the English system offer us nice hunks of space and weight as basic units, it also exercises different notions of divisions and symmetry. Two cups to a pint, two pints to a quart, four quarts to a gallon. And then in weights, sixteen ounces to a pound. Here is the binary system introduced to every school child —— used for life by every citizen. It is beautiful—— splitting things in half and then in half again. The Metric system, trotting along side the Decimal system, avoids such an approach by burdening simple fractions as 1/16 with lengthy decimal equivalents.

Twelve inches in a foot. How interesting it is to deal with twelve. How amenable it is to division compared to ten, the base of the Decimal system. Look at twelve's divisors—— 2, 3, 4, 6. What a generous disposition it has. We can be thankful that twelve and its multiples—— 24 and 60—— are holding on even in the Metric system which continues to use the same calendar and clock as the English system. But this may not last the century. Already the Canadian Metric Association recommends shifting to the Metric Day;

the chrona = 1/10 day;
the centichrona = 1/100 day;
and the rema = 1/100 centichrona.

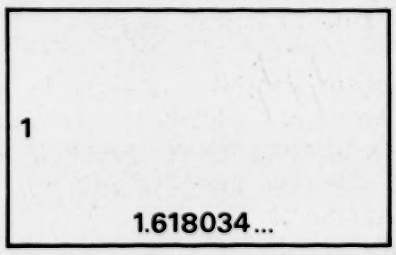
And then there is the argument of the indrustrialists. The world needs common part sizes. Bolts and nuts should be the same the world over. The thread should be cut on the same pattern. I am not sure this is true. Why should a Belgian bolt fit a Canadian nut? If we do grant the industrialists their common bolt sizes, this still shouldn't threaten the English system. We can afford to exchange our 1/2" bolts for 12 centimeter bolts.

The great shame is that as systems of measure extend they cease to be simply measures. They become, instead, recommendations for the sizes of things. Unfortunately it takes a certain amount of nerve to make something an odd size, to pay no attention to these recommendations which reach us as a kind of background hum.

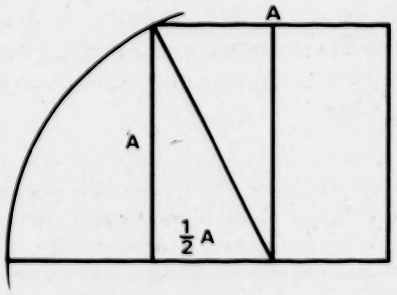
Le Corbusier realized the effect that measuring instruments have on the sizes of things. Not to be beaten by such an instinct, he sought to benefit from it by introducing his Modulor—— a scale of measurement having nothing whatsoever to do with the Metric system or the English system. In Le Corbusier's **The Modulor** and **Modulor 2** he describes in great detail his scale based on the dimensions of the human body and growing out into space not by multiples of ten or twelve, or two or three, but by the divine proportion,

$$\frac{1+\sqrt{5}}{2}$$

Rectangles made with their sides in the divine proportion are especially pleasing. A scale of such dimensions has the nice property that the sum of two consecutive intervals equals the next larger interval. Einstein said of the Modulor, "It is a scale of proportions which makes the bad difficult and the good easy".



Golden rectangle



How to construct a golden rectangle

This seems to me to be one of the most enlightened and sensible efforts that a man has ever made. Here was someone really grappling with the promise of mathematics and uniformity; someone not discouraged by the fact that our number system seems almost to resent stating his proportions—— for how clumsy an expression $\frac{1+\sqrt{5}}{2}$ or its decimal equivalent 1.618034. . . is. Today the divine proportion can appear among the keys of the pocket calculator along with pi. The Modulor divisions can be repeated on tape measures as different colored lines. Let's keep the English system and add the Modulor, and then be alert for still more useful measurements.

Let us beware of anyone trying to take the seven day week away from us. Primes such as seven are so ungainly it is a comfort to have seven at hand metering out the days in a week. What a relief that the week isn't even; what a relief that it doesn't have ten days! We need variety.

WHO NEEDS SYSTEMS OF MEASUREMENT?

Nature builds deltas, clouds, and mountain ranges all without counting. There are birds, flowers, centipedes, and yet we never find any numbers—— no sheets of calculations.

Dead leaves, tail feathers, snake skins, but no calculations. We don't dig into a mountain range searching for the meter stick used in its construction. It isn't there. The parts themselves know what to do. The rocks tumble at the bottom of a flooding river—— the water evaporates into the air. As one thing follows its pattern it sets other patterns.

Nothing balks. The whole world talks and works at the same time.

Why is it that we need number systems, measuring systems, calculators? Don't you suppose the material we use in establishing such systems resents this? Who are we to place matter in such limbo?

Why make wood into a yardstick that only holds paint marks in place? What a boring task—— what a pompous thing to be occupied with. More and more of the world is relegated to remembering and ordering. Libraries full of cardboard, paper and ink; metal taken out of the ground for statues and historic markers; stone quarried from a mountain side to be chisled into ungainly shapes and patterns. Any time that measuring and accounting can be forgotten and the materials handled spontaneously, I'm sure nature is more comfortable. A foot is a foot—— why have a painted piece of wood repeating what is already said at the end of your leg?

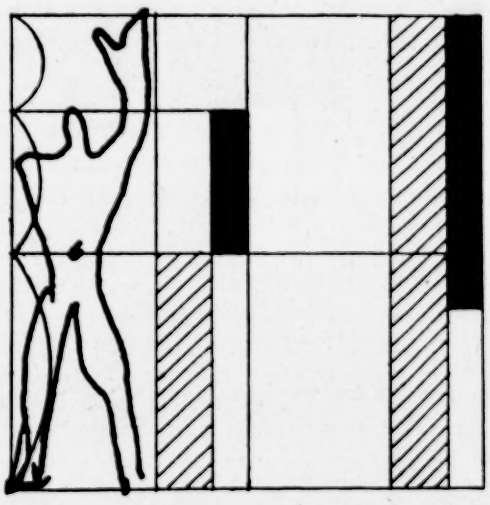
•

RECOMMENDED READING

For an excellent defense of the English system of measures see;
John Michell, City of Revelation, Abacus Books, page 112.
also;
John Michell, Traditionalist Manifestos— "In Defense of Population", an essay.

For more on the Modulor and the Divine Proportion see;
Steve Baer, The Zome Primer, Zomeworks Corporation.
Le Corbusier, The Modulor and Modulor 2, The MIT Press.
Anne Tyng, "Geometric Extensions of Consciousness"— an article in Zodiac 19, Milan, Italy.

For the Metric system see;
H.F.R. Adams, Metric Units, McGraw Hill Paperback.
Helmer A Ronningen, Metrics, Measurements for Tomorrow, Collier Books.
Neither of the books on Metrics is very interesting, but they probably aren't meant to be.



Le Corbusier's Modulor

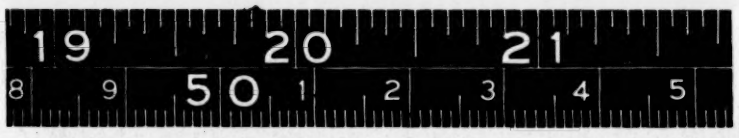
"SCRAPS"
from Investigations Comparing the Metric System and the English System of Measures.

ABOUT MODULOR: I think one of the difficulties that people have had in using the Modulor is that the divine proportion does not appear as a simple expression in our number system. Those who wish to use it continuously translate back and forth between powers of the divine proportion and the decimal system. Almost as if they were speaking a new language and were able to use the nouns but not the verbs.

It is interesting to find that if you are dealing with geometrical systems with five fold symmetry such as the regular pentagon and star in two dimensions or the icosahedron and dodecahedron in three dimensions, the Modulor is the natural unit of measurement.

Strangely enough Le Corbusier was not interested in such geometries. In fact he especially detested the uses he had seen of the starred icosahedron and dodecahedron. (See Le Modulor—page 72.)

WHAT ABOUT NUMBERS? Are they all they are claimed to be? What do our numbers really tell us? Do they do any more than merely suggest something about the quantities we ignorantly presume they represent? What about the number 37,541,327,895,368,714,321,999,527? This is an enormous number. I expect that I am the first person to ever write it down. Should I notify Mr. Vapanek, my patent attorney? No! These are coordinates of a place I have not visited. We must demand



that the location be homesteaded before we express our awe and wonder.

Is my number the cube of another integer? Is it the cube of a cube? Is it, instead, a prime number? Is it, instead, an even number? Perhaps a number divisible by 21? The number isn't impressive until I know answers such as these.

The mathematicians will tell me I have missed the point—that I don't understand the meaning of numbers. But I suspect there are surprises in store for even the sober mathematician.

I would like to propose another way of counting. One that would make it a challenge to name even the number of weeks you had lived.

Prime numbers are numbers that can't be arranged in a rectangular array—single lines excepted.

Every number is either a prime or the product of smaller primes. I would like to suggest a number system where each prime would have its own name. . .

1	2	3	4	5
lead	coal	silver	coal.coal	slate

6	7	8	9	10
coal.silver	iron	coal.coal.coal	silver.silver	coal.slate

11	12	13	
gold	coal.coal.silver	uranium	etc.

Most simple equations would involve a fairly safe journey into the unknown of larger numbers since a product is safely bred from existing stock. But what about a product + another quantity? The question then arises, what is its name? How is it formed? There would be no simple answers. In the lengthy shuffling where construction by the rectangular array is attempted, a great deal would be discovered about the properties of the new quantity.

If we were on a ship without measuring instruments and we needed a unit of length, someone seeking harmony would want the unit to be 1/100 of the ship's length. To find what 1/100 of the ship's length was, the ship would likely be measured with some convenient stick marked off repeatedly on the deck.

I think the convenient stick chosen to measure the ship would probably be a better candidate for a unit of length than the divine 1/100 of the ship. On what other grounds would the stick have been chosen?

Systems of calculating and measuring are divine links between ourselves and our technology. They are part of the womb in which machines are created.

Animals produce other animals by breeding. Our equipment is made, altered or repaired while surrounded by measuring instruments and calculations.

Compare the breeding of animals or the propagation of plants with man's constructions. How in the tiny, tiny space of a seed are the construction instructions passed on? Nature is baffling. She must take an entirely different approach with matter than we do. Perhaps it is a kind of inspired leadership that the sprouting seed offers to the materials around it. The seed can't find the same reluctant dirt and water that we do. These same substances must in fact be swarms of molecules only too happy to enlist in the construction of a blade of grass or a tree.

One goal of measurements and calculations seems to be to get ahead of the world. A race to the inevitable. Fleas racing among themselves along the nose of a race horse racing across the finish line.

Some English conversions to remember:

1 gal. = exactly 231 in.^{3}, $231 = 3 \cdot 7 \cdot 11$

1 cubic foot of water at room temperature weighs 1000 ounces. (Linus Pauling mentions this somewhere.)

1 mile = 5280 ft., $5280 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 11$

One reason 5280 is such a good unit of measure is that it has so many small primes as factors.

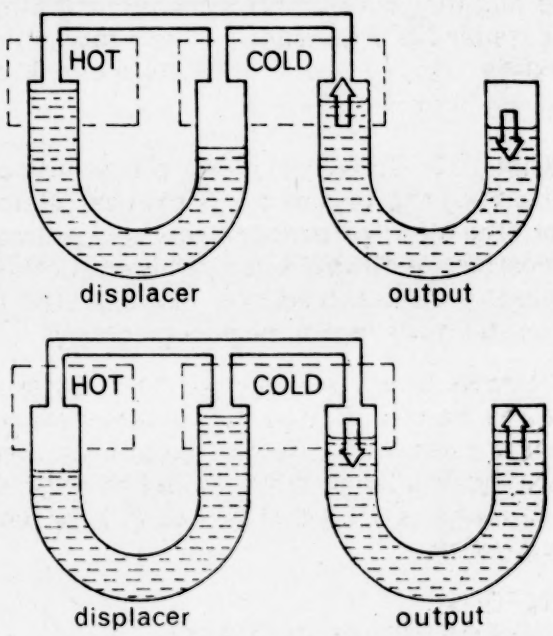
The same with 360 as 360° in a circle. $360 = 2 \cdot 180 = 2 \cdot 2 \cdot 90 = 2 \cdot 2 \cdot 2 \cdot 45 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 15 = 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 5$

The Metric system never even recognizes any factors but 2 and 5.

Baer's Diving Engine rivalled in England

Steve Baer came to p. 530 of the 29 August 74 New Scientist, *glanced into an article by Dr. Colin West titled "And Yet It Moves", and realized, "That's my Diving Engine!" He had detailed his Diving Engine in the Summer 74* CoEvolution Quarterly, *heh, two months previously. The English engine, called "Fluidyne", is formally identical. Baer sent congratulations along with a copy of his* CQ *article. Steve's son Jose (ten years old?) predicted Dr. West's response: "That's my Fluidyne!"*

—SB



"Fluidyne engine"

Two needs

One device solar energy workers badly need is a good heat-controlled muscle. Think of all the useful functions such an implement could have! Let us imagine it to be like a hydraulic cylinder. Below a certain temperature the piston is inside the cylinder. The temperature increases and the piston forces its way out of the cylinder with great power. We want it to be strong and reliable. We should not settle for anything less. We want our device to be able to deliver 100 ft/lbs of power —— we want to be able to buy special ones that are even larger and more powerful. They must be good for 50,000 cycles so that they will last for years and years. We will use our heat-controlled muscles to open and close interior or exterior insulating doors. We will use them in conjunction with shadow bars to power large collectors as they turn tracking the sun. Automobile thermostats suggest designs—— some use bellows filled with alcohol—— when the alcohol boils, the bellows push a piston out. Other thermostats use wax. When wax melts, it expands about 10%. This expansion is used to push out a tapered pin from within a rubber boot. The auto thermostats are not big enough or powerful enough.

Something else we need is a liquid which converts in reverse. That is—— when it warms it shrinks and falls, when it cools it expands and rises. Water has this characteristic at temperatures below 39°F, heavy water has the characteristic to a slightly higher temperature. We want a liquid that acts this way at 100°F, at 200°F. We will use such a reverse juice in countless applications, pumps for heat transfer will be replaced, for whether the source is higher than the sink or the sink higher than the source, we will have an obedient liquid ready to carry the heat. Is it too difficult a task? Why fool around with elaborate pumps and thermostats—— let's solve the problem once and for all with reverse juice!

—Steve Baer
Box 712
Albuquerque, NM 87103

Man-made planets, seriously

BY GRAHAM CHEDD

Mike Phillips, former President of POINT, has started an International Committee for a New Planet (Pier 40, San Francisco, CA). I sent the following article (which was in the New Scientist *24 Oct 74—— it's weekly, $37.50/yr., from 128 Long Acre, London WC2E 9QH England) to Mike for comment. His comment:*

- *This is excellent and very comprehensive.*
- *POINT made a grant of $600 to sponsor his first conference requiring that the funds go through Princeton so Gerard's interests would have to be taken a little more seriously. 4/74*
- *Gerard will be taken very seriously when he's finally attacked by those who believe in the "balance of" nature theory. [You got some other theory?–SB]*
- *I love his quote near the end. This conception, voiced publicly is more poetry than polemic.*
- *Personally, I think the large size of our current planet has kept us from destroying our own species. My interest in the International Committee for a New Planet is to deal with how a variety of cultures can live together in a finite space.*
- *Gerard is a soft-spoken, gentle, and wonderful guy.*

–Michael Phillips

Gerard O'Neill used to be a high-energy particle physicist—— professor of physics at Princeton, an originator of the colliding-beam concept in particle physics, and the leader of groups at Stanford and CERN. Today his 'phone hardly stops ringing with requests for radio and TV interviews, magazine articles, books and, of course, lectures. He has become a hero on the college lecture circuit; and it's not surprising. For O'Neill is offering a way out of the population-resource crisis radically different from the no-growth proponents. His is the traditional solution for a sorely pressed people: emigration—— emigration to a place where the land is plentiful, the air clean, the water sweet, the opportunities limitless, and the social and political structure whatever you wish to make it: in short, Utopia. What makes O'Neill's Utopia different from those of the past is that it is not on Earth at all but out in space near the Moon; and its land is not the surface of a planet but the inner walls of immense rotating aluminum cylinders. O'Neill is proposing that we colonise space.

It is not an idle proposition, as even the properly conservative editors of the scientific literature are now beginning to admit. A brief note in Nature the other week marked the idea's achievement of scientific respectability, though the breakthrough came last year with the acceptance of a manuscript by Physics Today (the article is in the current issue). These appearances in the literature follow a blaze of publicity in the United States as a result of a two-day meeting on the colonisation of space held at Princeton in May. There is no doubt that O'Neill's ideas deserve the attention they are getting. For while he describes a Utopia, he does so in strictly practical (at least technologically) terms. What is more, it's within reach. With an expenditure modest in terms of the annual income of the oil-producing nations, one million people could be living under natural sunshine in valleys with a normal atmosphere, perfect weather, grass, trees, farmland, rivers and lakes, birds and animals, simple cheap transportation and a total freedom from pollution, all by the end of the century.

O'Neill's concept of space colonisation began with a classroom assignment. In 1969, "at the peak of the disenchantment with science and technology," in O'Neill's words, he organised an advanced technology seminar for the brightest dozen or so engineering students in a physics class. He wanted a topic that would involve large-scale engineering but that would have "potential benefit for mankind." By accident, the first topic he picked queried whether the surface of a planet is the best place for a high-technology civilisation to live. He started to toy with the idea of space habitats, fully expecting to come out with "uninteresting" numbers that would limit the size to that essentially of a large space station. But to his surprise he found that even with existing technologies one could build in space habitats as big as 32 km long and 3.2 km in radius—— cylinders with their walls made of alternating longitudinal sections such that each of three "valleys" would be opposite one of three windows, or "solars" (Figure 1). Pointing the cylinder at the Sun and reflecting the sunlight through the solars into the valleys by huge mirrors would give the appearance of a stationary Sun (as on Earth) even though the cylinder would be rotating once every 114 seconds

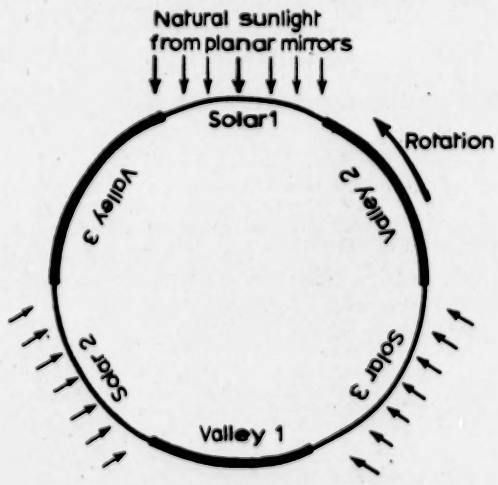


Figure 1 A cross-section of a habitat. The cylinder environment in each of the three "valleys" has normal gravity, air, blue sky, natural sunshine, a day/night cycle, seasons and controlled weather.

to give an apparent gravity like that of the Earth. So big would be the cylinders that even the sky would be blue.

The harder O'Neill looked at his habitat concept, the better it became—— the more little tricks he could see. These ranged from matters of major importance, such as the fact that parabolic solar-energy collectors at the end of the cylinder toward the Sun could power steam-driven electricity generators for limitless, pollution-free energy; to such minor but amusing realisations as that new sports such as man-powered flight would be possible up in the low-gravity centre of the cylinder. One problem, the precession of a single cylinder, was solved by arranging them in contra-rotating pairs joined by a compression tower at one end and a tension cable at the other (Figure 2). This solution also provided a neat means of travel between the cylinders: a space-cab simply unlocked from the surface of one cylinder at precisely the right moment would travel, without any internal power source, at tangential velocity to the surface of the other cylinder, at which it would arrive of course, with zero relative velocity. Long-distance travel along one of the cylinders would be accomplished via tracks on its outer surface, in the drag-free vacuum of space. O'Neill has visions of people bicycling to train stations, "and popping through a hole to the outer surface like the White Rabbit".

The principle attraction of the habitat is that its scale enables it to be so Earth-like. Most of the features of the Earth could be reproduced there, but with the advantage that climate could be controlled at will (day and night, winter and summer, can be mimicked by opening and closing the Sun mirrors), and that polluting industry and even, if so desired, agriculture, could be located in separate, cruder cylinders arranged in a circle in space around the parent cylinder. A full-size habitat 32 km long could support a population estimated by O'Neill as between 200,000 and 20 million.

Gravitational "hollow"

The crucial question, of course, is how all this is to be achieved. Here O'Neill's ideas become even more impressive. They begin with the building of a Model 1 habitat (Figure 3), just one km in length and 100 m radius, and capable of supporting perhaps 10,000 people. It would be located, like the habitats to follow, at the L_5 Lagrangian point of the Earth-Moon system, a stable gravitational "hollow". From Earth to L_5 would be sent, via a modified version of the space shuttle, a total of some 10,000 tonnes of people (2000), food, equipment and liquid hydrogen (about 5400 tonnes). Another couple of hundred people would be sent to the Moon, where they would set up a surface mining operation, the elements most needed being aluminum, titanium, silicon and oxygen—— all known, from the visits of Apollo, to be plentiful.

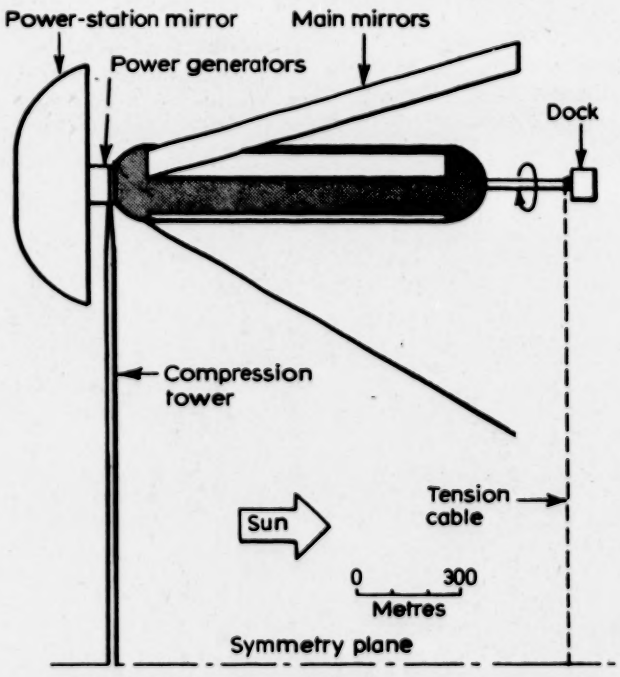
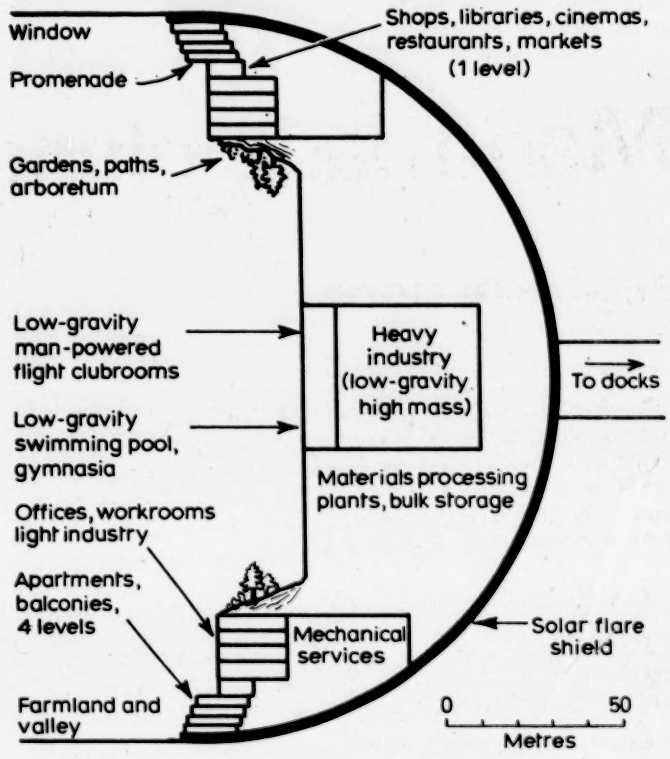


Figure 2 The cylinder of a pair of Model 1 dimensions; showing the arrangement of the planar mirrors to reflect sunlight through each "solar" to the "valley" opposite. In this model, the power-station is placed at the end away from the Sun.

Figure 3 One possible configuration of the end cap of a Model 1 habitat. Scaled up to Model 4 (3200 m in radius), the end cap could accommodate a mountain profile (the climbing of which, with gravity diminishing with height, would prove an interesting experience!)



The lunar operation would also involve the construction of a solar-powered launcher. O'Neill has two alternative methods in mind: in the first, the rotary pellet launcher (RPL), a sort of two-armed Roman catapult slings lunar ore in 5-kg pellets out to L_5; while, in the other scheme, the same object is achieved via a linear motor that accelerates buckets of ore to the end of a track and this returns the buckets for a refill (the transport linear accelerator, or TLA). At L_5 the waiting colonists simply catch the constant stream of lunar rock, and make from it, with the technology brought from Earth, the aluminum, titanium and glass needed to build the habitat. Combining their 5000-odd tonnes of liquid hydrogen with the oxygen in the rock gives them their water supply, some 50,000 tonnes of it.

So much for Model 1, which according to O'Neill could be built, starting now, by 1988. Its small size would not make it ideal; but the idea is then immediately to set about constructing—— with the much bigger available work force—— Model 2, 3.2 km long and 320 m in radius. This could be ready, thinks O'Neill by 1996, and could comfortably accommodate 100,000 people. Several more Model 2's could be built; or the task of constructing Model 3 (to hold a million or so people), and then ultimately the full-sized Model 4, could be put under way. By this time (around the early 2000s) the asteroid belt could be providing a source of building materials, transportation to and fro being by huge ore-ships powered by RPL or TLA reaction motors. Such large ships, fitted out as liners, could also be ferrying the now-considerable human traffic from Earth orbit to the new land at L_5.

Table 1 Possible stages in the development of space communities

Model	Length (km)	Radius (m)	Period (s)	Population*	Earliest estimated date
1	1	100	21	10 000	1988
2	3·2	320	36	$100\text{-}200 \times 10^3$	1996
3	10	1000	63	$0{\cdot}2\text{-}2 \times 10^6$	2002
4	32	3200	114	$0{\cdot}2\text{-}20 \times 10^6$	2008

*Population figures are for double unit; higher figures are the approximate ecological limits, for conventional agriculture.

One of O'Neill's major points is that having obtained a first toe-hold in space in Model 1, the costs of subsequent building rapidly decline as more and more can be manufactured in situ using the cheap materials and transportation costs of space, and the low fabrication costs of a zero-gravity environment and unlimited solar power. Indigenous food production, too, would be cheap. Before long, major manufacturing industries could be relocated from Earth to the L_5 colonies. O'Neill's intention is that the colonies should grow and reproduce themselves faster than the expansion in the human population, such that having reached a peak of some eight billion in about 2020 the population remaining on Earth would thereafter decline to an "ideal" that O'Neill guesses would be about 1.2 billion. Most of mankind thereafter will be born, live and die in space.

To quote O'Neill from his remarks at the May meeting in Princeton: "By 2074 more than 90 per cent of the human population could be living in space colonies, with a virtually unlimited clean source of energy for everyday use, an abundance and variety of food and material goods, freedom to travel and independence from large-scale governments. The Earth could become a worldwide park, free of industry, slowly recovering by natural means from the near death-blow it received from the industrial revolution: A beautiful place to visit for a vacation."

Cost Comparable with Apollo

Could O'Neill's vision be realised? Is it desirable? These are now principly political, economic and social questions which O'Neill hopes the discussion prompted by the wider dissemination of his ideas will answer. He has estimated that the cost of establishing Model 1 is of the same order as the $20-odd thousand million cost of Apollo. For that sum, the financing agency could by the 1990s offer to build Model 2s, say, on contract for any nation or group that wants one. The costs for an individual emigrant to get to L_5 O'Neill estimates at around $3000. In both the case of the nation purchasing a habitat and the individual emigrating to one, the necessary finance would have to come from the earnings of the colony once established. As for the desirability of life at L_5, reactions range from those who rebel at the idea of a neatly ordered, totally managed Disneyland-type habitat, to those who are attracted by the opportunities for new social and political experimentation (O'Neill finds young Maoists among his most enthusiastic supporters!)

Would a massive investment of money and talent in establishing space colonies do more to assure the future of mankind than a similar investment here on Earth? That's a debate that might become common in the months ahead. In the US, O'Neill is not the only one to have begun questioning the "Spaceship Earth" concept, that Earth is all we have and that if we want to preserve it we must manage it more and more carefully and impose more and more constraints upon society. Others too are saying that there exists an alternative to catastrophe or an increasingly repressive social regime on Earth in a turn to space. Might NASA after all save the world?

•

Table 2 Masses of materials required for Model 1 (metric tonnes)

	Total mass required	Mass required from Earth
Aluminium (container, structures)	20 000	—
Glass (solars)	10 000	—
Water	50 000[1]	—
Generator plant	1000[2]	1000
Initial structures	1000	1000
Special fabricated hardware	1000	1000
Machines and tools	800	800
Soil, rock and construction materials	420 000[1]	—
Liquid hydrogen	5400	5400
2000 people and equipment	200	200
Dehydrated food	600	600
Totals	> 510 000	10 000

[1] Includes replenishable reserves to be used to initiate construction of Model 2, and so are higher than the minima required for Model 1.
[2] For 100 MW plant.

BY ROBERT FRANK
A Canadian Home, 1973

Research Communities (continued)

Pages 534 and 535 of the **Epilog** *list some research communities dedicated to the pursuit and development of low impact technologies. One that is conspicuous by its absence is Max's Pot, more formally known as the Center for Maximum Potential Building Systems. Affiliated with the School of Architecture and Planning, University of Texas, the Center has Pliny and Daria Fisk as directors. Plans for sale now include a small bio-gas plant ($5) and a woodburning stove with afterburner ($3). They are developing plans for a sonic nozzle aerobic toilet, an electrostatic sulfur spraying rig, and an 1800W, 12V Kit O'Parts Windgenerator. See the* **Energy Primer** *for more details about this creative operation.*

Sonic Nozzle Aerobic Toilet

This system is being developed in answer to people around here in Texas who originally wanted to build our biogas plant in answer to their waste water and energy needs but couldn't quite afford it. So we said how about a system that will be environmentally sound, will use no water (except initially) and whose effluent you can use on your garden. Now we know that such systems in fact existed. Purdue University had an aerobic system going in the late forties in 55 gallon drums that soon became patented as the Sanitoid toilet. Now that their patents are up, about 8-10 different aerobic systems have come onto the market but nearly all of these cost from $1000-$2000 for a single family house.

Now with my dad's help we got the idea that this system could be built for about $200 by using sonic technology. Sonics, as you all know, is the art of atomizing liquid substances by use of sound vibration. With it you can entrain water with millions of micron sized bubbles, making aerobic waste treatment far more efficient. We found a company, although the nozzle is new and presently costs $25, that says that with decent demand the nozzle should cost about $3. We add to this some marine toilet technology and recycle aerobically treated water. The system is finished and we are about to install it into our rural house. It does use an electric pump motor fairly constantly and a fairly big surge waste grinder but the latter only lasts for about 20 seconds. This Fall I am getting a biologist friend to run BOD, DO, and other water analyses on it. We should have all this information in plan form by 1975 for anyone to build.

—Pliny the Elder and Pliny the Younger

Another group getting into some good projects is ACCESS, an option at the School of Architecture, University of Wisconsin, Milwaukee. ACCESS is retrofitting a 70 year old house with reflective shutters, solar heaters, solar heated greenhouses, etc. Remodeling older houses to aesthetically and economically incorporate renewable energy hardware is a big challenge that few groups have been willing to take up. However, that's where the real action is going to be in the next decade or two as new housing starts continue to falter.

—Chuck Missar

Center for Maximum Potential Building Systems
6438 Bee Caves Road
Austin, Texas 78746

ACCESS
c/o John Schade
School of Architecture
University of Wisconsin
Milwaukee, Wisconsin 53201

Heat-efficient pots

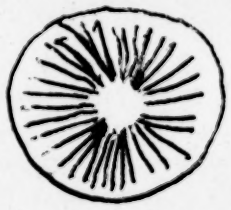
Dear Mr. Hottel,

We are interested in getting some more information on a subject that was briefly mentioned in connection with your name in the Feb. 1974 issue of **Technology Review**. On page 16, the author, C.A. Berg, mentioned that you did some work exploring the efficiency of heat transfer of cooking pots. He goes on to say that you found that "teakettles heated by gas flames exhibited a heat transfer efficiency of about 15%. . . . by minor re-design of the utensil the heat transfer efficiency could be raised to more than 60%."

We would be interested in more specific information about how this re-designing can be done as we think it might be of interest and practical use to our readers.

A. Sharp for Whole
Earth Epilog

The bottom of a tea kettle was finned. I forget how many, or their exact dimensions. I believe they were about one inch deep, ¼ inch apart at the outside edge of the circle, and probably of about 20 gauge copper.



ACH
Prof. Emeritus

It was done in about 1931 or so, in cooperation with T.K. Sherwood.

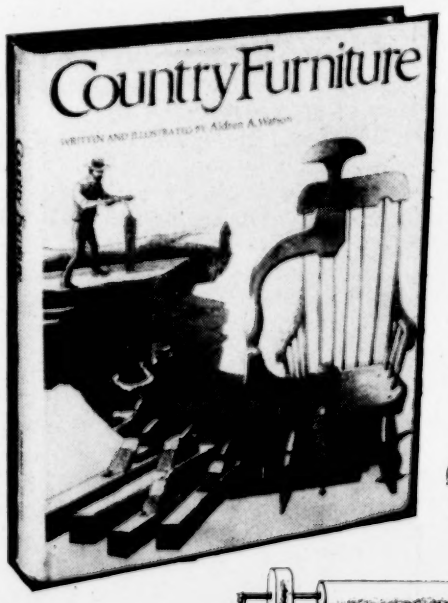
Country Furniture

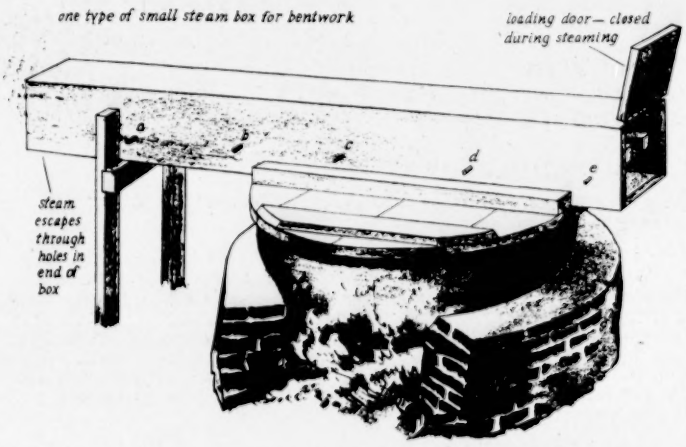
i began building furniture without hardware partly as a discipline and partly because i lived thirty miles away from the nearest hardware store, and was surrounded by a forest of nice round lodgepole pine with no electric wires strung between them. i began with a pretty good load of hand tools, and a couple of picture books, built a shaving horse from the pictures in Eric Sloane's **Museum of Early American Tools**, *and then went to drawknifing and drilling and pegging wood to wood.*

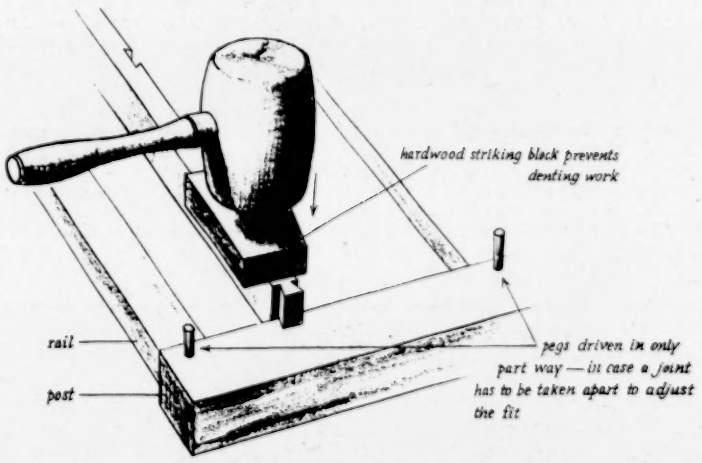
one thing for sure: **Country Furniture** *is a good picture book, mainly because its author is a book illustrator, but also because there is a lot of interest shown in the working procedures and tools of early american furniture makers. this is not a step-by-step manual, more of a collection of lost knowledge which can be put to good use by the crafts person who is having a little trouble finding someone to whom to apprentice nowadays. if only i could build furniture as precisely as aldren watson can illustrate.*

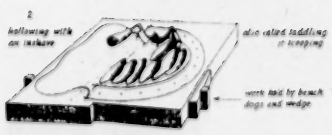
—J.D. Smith

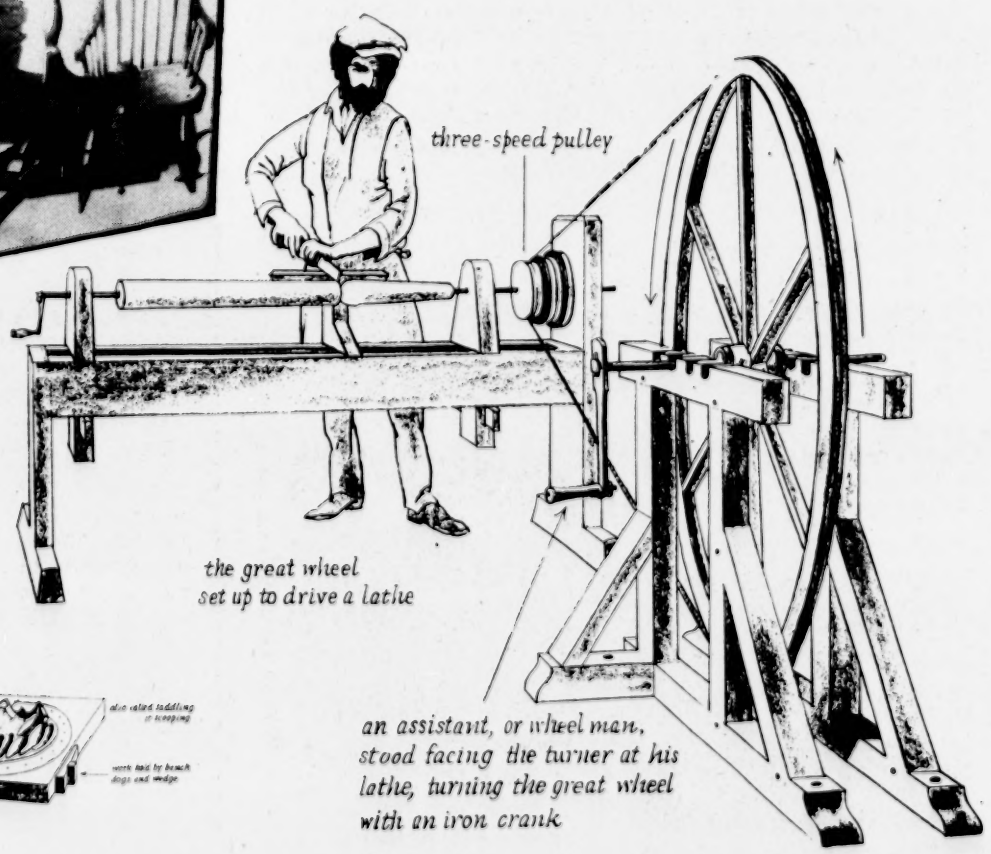
Country Furniture
Aldren A. Watson
1974; 274pp.
$7.50 postpaid
from:
Thomas Y. Crowell
Company, Inc.
666 Fifth Avenue
New York, NY 10019
or Whole Earth






hardwood striking block prevents denting work
rail
post
pegs driven in only part way — in case a joint has to be taken apart to adjust the fit





the great wheel set up to drive a lathe

an assistant, or wheel man, stood facing the turner at his lathe, turning the great wheel with an iron crank

Country Ways

Country Ways is a kit catalog, a wonderful kit catalog —— snowshoes, cross-country skis, canoe paddles, sleeping bags, packs, musical instruments, power tools, knives, toys . . .

—SB

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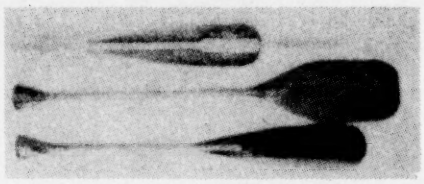
Minnetonka, MN 55343



CANOE PADDLE KITS

Sometimes a kit is the only way to do the job sensibly. Here's our best:

The paddle when finished is stronger and lighter than any paddle available, and you made it so its size and grip and blade fit you. We use lightweight cedar for the blade, shaft interior and grip. White oak goes on the shaft outside and along the throat. Blade and throat are then protected and strengthened by fibreglass roving and light 4oz. cloth. Shaping can be done with planes and rasps, but is most fun with an old-time curved bottom spokeshave ($7.50 from us). Complete (less resin & glue):

Standard (our choice) 7" blade kit $9.95; 10" blade kit $12.50

A very special paddle for those who care—a very special gift to those who care. Tested and improved for 20 years, this one is tops. Don't ask about finished paddles—they would cost about $60 each. Best to make one or several yourself.

•

MOUNTAIN-STYLE BANJO KITS: The biggest bargain we have, these banjos have a warm and gentle sound fitting their wood and goat-skin construction. One of our easiest kits to make, and making one is the best way to learn to play (in both cases the hard parts are already done). Wood is all walnut with laminated resonator head, stretched drumhead, all parts, strings, etc.: 5-String Mountain and Bluegrass banjo kit $80.00 4-String Plectrum (Dixieland-style) kit $76.95

Indian Basket Weaving

The most valuable feature of this book is the descriptions of materials to be gathered in the wild and details of their preparation: sedge root, willow, redbud, yucca, etc. The author has lived and woven baskets with weavers from each of the four tribes covered. She has a gift for transmitting not only the actual technical information, but also the emotional experiences of working with these natural elements. This book will be especially valuable for basket weavers who have the knowledge of the stitches, but have wanted to explore using native plant materials. Ms. Newman also suggests substitutes for materials found only in limited geographical areas for weavers outside of the western states.

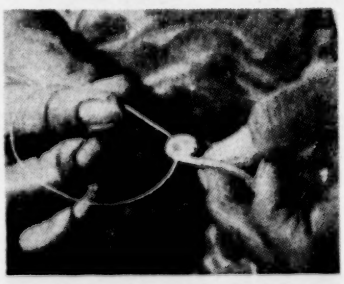
—Susan Druding Jones

Indian Basket Weaving

(How to Weave Pomo, Yurok, Pima and Navajo Baskets)
Sandra Corrie Newman
1974; 91pp.

$4.95 postpaid

from:
Northland Press
Fort Valley Road
Flagstaff, AZ 86001
or Whole Earth



How to Start Your Own Craft Business

Remarkably clear, comprehensive book. By simply stating how to do it, why, and including a copy of the completed form, it leads you painlessly through the paperwork of getting licensed, financed, legally-covered, and taxed. Equally fine sections demonstrate streamlined systems for bookkeeping, inventorying, shipping, using the U.P.S., selling an area (wholesale, consignment, direct), doing fairs and shows, collecting bills, and once launched, how to analyze your progress, and where to expand or cut. To echo those who know, "Wish I'd read it when I started!"

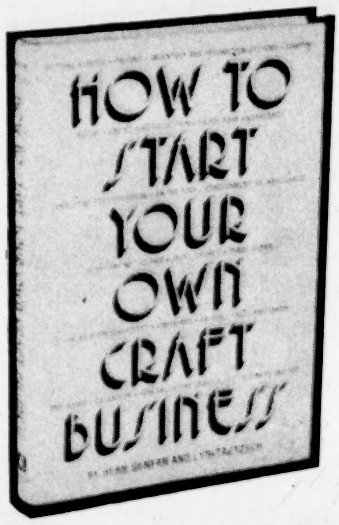
—Diana Sloat

How to Start Your Own Craft Business

Herb Genfan and
Lyn Taetzsch
1974; 203pp.

$7.95 postpaid

from:
Watson-Guptill Publications
2160 Patterson Street
Cincinnati, OH 45214
or Whole Earth



If you are selling to retail stores who like the way your work sells, their customers expect a ready supply of your work. Store owners, you'll find, want your goods on their shelves within a week or two after they order. Your success at this stage depends almost entirely on how quickly you deliver.

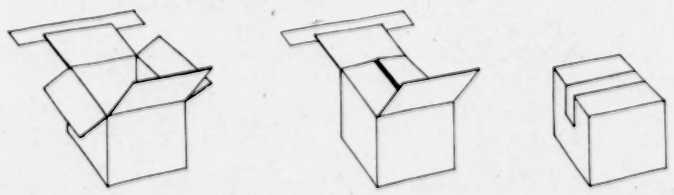
The nature of a good system allows you to see exactly what you have and need at a glance. It's a powerful planning tool for all the materials, tools, labor, and stock you'll need to have to fill orders quickly. When selling in volume, your reputation depends upon delivering on time, particularly during holidays. You'll notice that many orders have a cancellation date written in. If the stores don't receive their orders by a certain date, they have the right to send all your goods back. It's even possible that they'll give up on you and choose another craftsperson who can supply them as they need it.

Production and inventory systems are well worth the time in planning and in keeping them up to date. If you've heard of a business failing because of "poor management," lack of organization is one of the factors that cause such failure. With other craftspeople competing for customers you can, by using control systems, be the one that makes it and stays in business.

•

Your own business, as you can see, will be quite a challenge. It lives, and you live with it; in a fairly short time you can see the results of actions, your decisions. If you buy a new tool either it works or it doesn't. If you design a new vase, it sells or it doesn't. In any case, you learn something, you change and grow.

If you want to expand and take out a loan, you work it out on paper, scrape together as many numbers and quantifiable facts as possible, throw in a dash of pure intuition and hope, and plunge ahead. What you accomplish lifts you right off the ground. And your failures provide useful feedback for the next decision, the next risk.



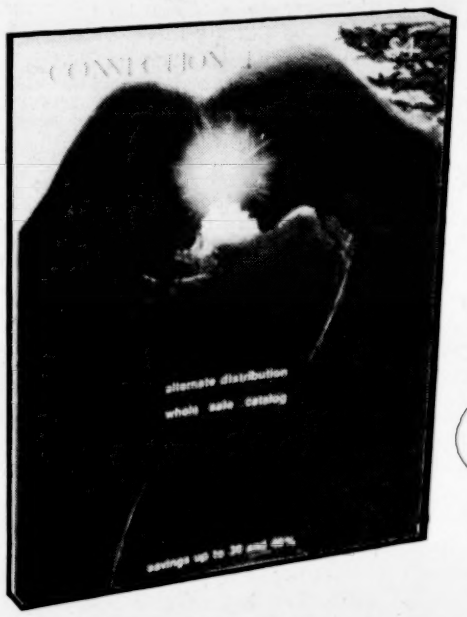
The Connection

A phenomenal service. Truly the thing we've been called but never been, an alternative Sears-Roebuck. Really tools, really cheap. All that remains to be seen is the quality of service (let us know your experience) and perseverence of the company (there is a fadable floweriness here).

2000 items, adding machines to zithers, ten to forty percent discount, shipping price given with each item. You pay with money order or bank check only (saves time and overhead). May their tribe increase.

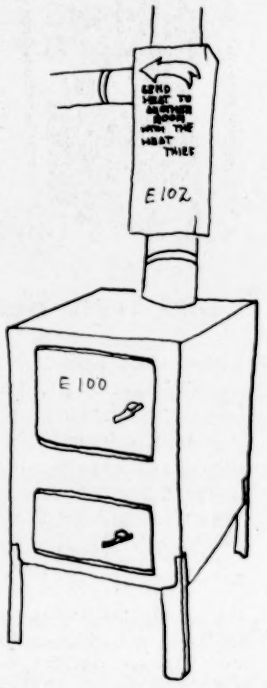
—SB

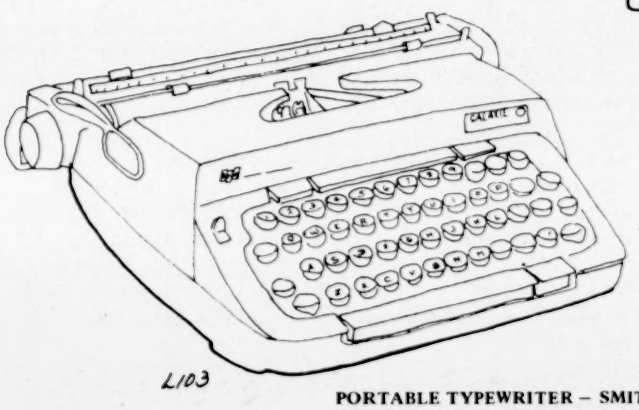
The Connection
1974; 204pp.
$4.00 postpaid
($11 includes subscription to monthly newsletter)
from:
The Connection
Box 627
Valley Cottage, NY 10989



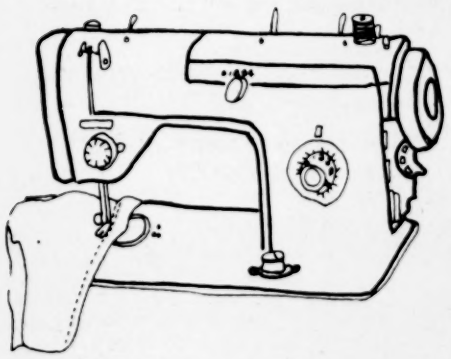
HEAT THIEF – AHEAD: Revolutionary heat transfer process. 2 halves of 24 gauge galvanized steel box w/ fitted sleeve, separated by fin-like coils, fits around stove pipe. Box takes heat from stove pipe and cooler air from opening on the bottom, to fins, which, through radiation and convection, force hot air through top opening and into other rooms. 9" x 9" x 20". Wt: 13 lb. (approx.)
E102-AH . . Ret $23.00 . . Sh 2.75 . . $16.00

WOOD BURNING STOVE – AHEAD: 17½" wide x 24" high and 31" back to front. 8" legs. Two front doors – top for fire box (includes removable grate), bottom for ash pit. Ash pit door has butterfly draft control (manual). 6" flue can be place wherever requested – top, to go out roof; back or side rear, to go out wall or window (please specify). Made of 16 gauge (full 1/16th" thick) grayish-blue hot rolled steel, solid welded construction. Wt: 80 lb. (approx.)
E100-AH . . Ret $175 . . Sh F.C. $120
With black finish:
E100a-AH . . Ret $190 . . Sh F.C. $135

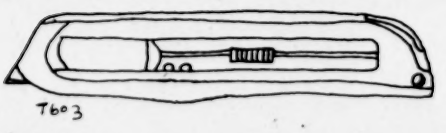




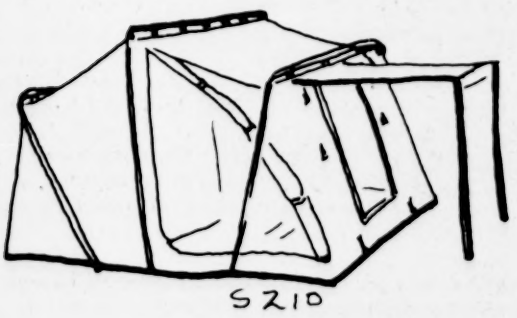
PORTABLE TYPEWRITER – SMITH-CORONA: Galaxie 12. Manual. Power space. 12" carriage. 88 character keyboard. Two changeable type bars. Touch selector. Quick-set margin. All-metal, vinyl-clad carrying case. 5 year guarantee. Colors: yellow or blue. Type styles: pica or elite. Wt: 14.7 lb.
L103-L . . Ret $142.75 . . Sh 3.66 . . $97.86



BUDGET-PRICED SEWING MACHINE – BROTHER: Heavy duty. Sews plain or fancy, blind stitches, monograms, darns, automatic bobbin winder. 18" x 13" x 8".
H302-BR . . Ret $110 . . Sh 6.35 . . . $77.00



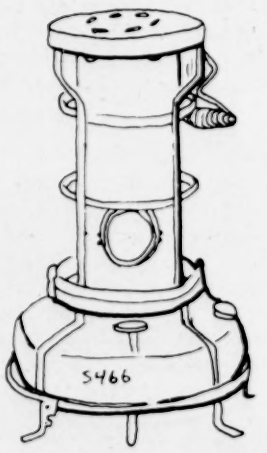
UTILITY KNIFE – STANLEY: Break-away blade provides 10 new sharp points. Push button advances blade – simply snap off old point and have a new point instantly; not necessary to disassemble handle. Handle stores blades. Comes w/ quick-point scoring blades and heavy-duty cutting blades. Length: 5 5/8".
T603-HG . . Ret $2.39 . . Sht $1.90



AUROBINDO – PRAJNA: 6'6" x 7'10" x 6' x 2'. Inside metal frame. Sewn-in floor is polyethylene coated on both sides. Specially wide roof for more shoulder room. Zippered mosquito door. Sleeps 3. Yellow w/yellow and green stripped fly. Wt: 27 lbs.
S207-D . . Ret $107 . . Sh 7.00 . . . . $74.97

ECONOMY COOKER-HEATER – ALADDIN: This unit produces 6000 to 9000 BTU's per hour. Has ¾ gallon fuel capacity and will burn 10 to 15 hours per gallon. Heats up to 3000 cu. ft., equivalent to 2750 watt heater. Pastel green w/ chrome tank base. Stationary cooking grid on the top. 17" x 10¼". Wt: 6 lb.
S465-GR . . Ret $48.00 . . Sh 2.50 . . $33.60

STANDARD HEATER – ALADDIN: Holds 1.3 gallons and burns 16 to 25 hours on one filling. Heat output is 5870 to 9320 BTU's per hour. Equivalent to 2750 watt heater. Will heat 3000 cu. ft. Pastel green. 20¾" x 14 3/8". Wt: 11 lb.
S466-GR . . Ret $73.00 . . Sh 3.50 . . $51.10



The big new bestseller from the Queen of Crime. First time in paperback.
Agatha Christie
Postern of Fate
JOHN D. MACDONALD
THE SCARLET RISE
THE SILVER CHAIN

Good Trash Reading

I have thought for a while that it would be good to recommend some of my favorite junk books to the readers of the Catalog or Epilog. In my house, we tend to adopt series of books, the longer the better, and everyone will read all of them, getting into the universe the author creates. None of these is particularly good literature, and some are really dreadful, but they all have real escapist value. From many of them, though, I've actually learned things I've considered valuable. But mostly they're fun.

As I thought about writing this review, many more series came to mind than I had originally thought of, some with real literary value, at least according to some people. I'll concentrate on the ones that I think might be less familiar, and that I know best. I welcome suggestions of others, since there is nothing better than discovering a new author and a new series with dozens of unread volumes.

ANGELIQUE, by SergeAnne Golon. Angelique is a woman in the France of Louis XIV who goes through incredible adventures, acquiring competance and mastery over her environment as she goes. She's a real survivor type, and I'm filled with admiration each time she draws on new (but believable) resources to pull herself and her friends through another tight spot. (7 volumes, each about 400 pages. Luxuriously long!)

JUDGE DEE, by Robert van Gulik. Judge Dee was actually a Chinese magistrate about 600 AD, and a very important political figure at the time. van Gulik is an Oriental scholar, and the books are full of interesting period lore, as well as being good detective stories. The books are written in the style of Chinese detective novels of several centuries ago, which is quite different from what we're used to. (about 12 volumes, 200 pages each.)

MATT HELM, by Donald Hamilton. He's a government killer, sent out to wipe out his counterparts from the Other Side. Matt has a fairly attractive, if bloodthirsty, personality, and a real mania for doing things right. After you read this series, James Bond is an incompetant. Don't judge the book by the movies, which were awful. (But think about Gordon Liddy while you read it.) (16 volumes, 200 pages each.)

TRAVIS MCGEE, by John D. MacDonald. He's not in the same class as the others (remember we've forgotten all about redeeming social value), but perhaps worth reading anyway. Our Hero lives on a houseboat in Florida rescuing Damsels in Distress. You may have a hard time with his disgustingly noble nature (I did), but the stories are sort of fun. The titles are colorcoded (Grey is one of the best). (about 12 volumes, 200 pages each.)

THE DESTROYER / EXECUTIONER / . . . series. Just recently, about a dozen almost identical series have come out about returned Viet Nam veterans who go on personal rampages against the Mafia. Some are under government sponsorship, some hunted by the police. They have various gimmicks, lots of violence, and all are pretty awful. But once you're hooked on shoot-em-up series, and you've got to polish one off to get to sleep, there's always more of these. (N volumes, 200 pages each.)

GEORGE PUTNAM THATCHER, by Emma Lathen. GPT is the vice president of a big Wall Street bank who keeps tripping over murders and solving them. He's a really attractive character whose idea of a good time is to have four uninterrupted hours at his desk to read financial reports. Hard to believe? He's really a top-notch character. (7? volumes, 200 pages each.)

KATE FANSLER, by Amanda Cross. This detective's gimmick is that she's a professor of English at Columbia. (So's the author, apparently.) The books are filled with clever literary references, and delightful dialogs. I'm only sorry there aren't more in the series. (4 volumes, 300 pages each.)

THE RABBI, by Harry Kemelman. After a while you get tired of detective stories where the detective is some unlikely person who solves murders. This guy is a young rabbi in a small New England town. I probably would have loved it if I had started this series first. But I didn't. These titles are coded by days of the week. (6 volumes, 300 pages each.)

Personally, I'm not a real detective story freak, so I'm leaving out the old standards you probably know all about anyway. But for the record:

Miss Marple, by Agatha Christie
Gideon, by J. J. Marric
Lord Peter Wimsey, by Dorothy Sayers
Nero Wolfe, by Rex Stout
Father Brown, by G. K. Chesterton
Lew Archer, by Ross MacDonald
Inspector Maigret, by Simenon

There's more, and I apologize for leaving out your favorite.

The LENSMAN series, by E. E. "Doc" Smith. This is probably the most famous series in science fiction. Lots of adventure, with superlatives thrown around with gleeful abandon. Every time you turn around, some lensman or other is saving the Free Universe. (Get the allegory?) (6? volumes, 300 pages each.)

THE INSTRUMENTALITY OF MAN, by Cordwainer Smith. In my opinion, this is the best science fiction ever written. No single character goes through this series, and it's hard to find his books and stories individually, let alone together. But Cordwainer Smith has created a consistent universe that has real depth, and his stories boggle the mind. (6 volumes, 200 pages.)

Science fiction is weak on good series, but there are some more good ones to mention:

The Wizard of Earthsea, by Ursula K. LeGuin
somebody, by Edgar Rice Burroughs
Retief, by Poul Anderson
Telzey Amberdon, by James H. Schmitz
The Puppeteer universe, by Larry Niven

THE CHRONICLES OF NARNIA, by C. S. Lewis. This has become something of a cult item, at least as a children's book, but don't be scared away if you haven't read it. It's got the depth for an adult that a good children's book should have, especially if you have enough religious background to appreciate the really good Christian allegory. (7 volumes, 150 pages.)

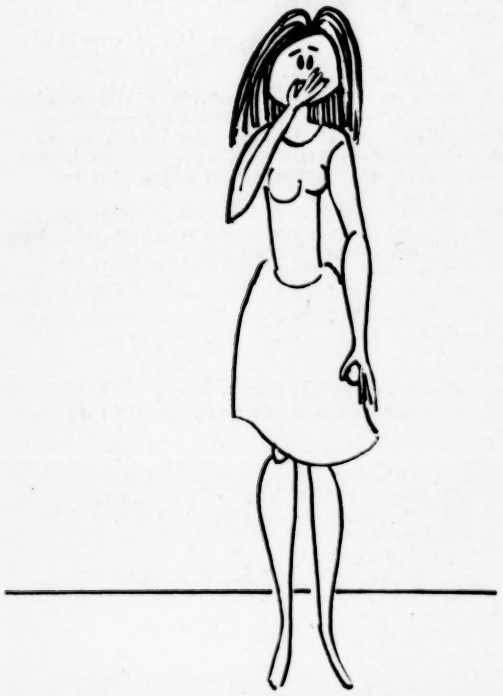
GEORGETTE HEYER'S REGENCY ROMANCES. These are not my personal cup of tea, but those who like it, love it. At a recent science fiction convention in Boston, they held a Georgette Heyer Tea for her fans. You learn lots about Regency England without hardly trying, and there's a LOT of books in the series, with more coming out almost every day.

There's a couple more series that have been around forever, but my conscience won't rest unless I mention them:

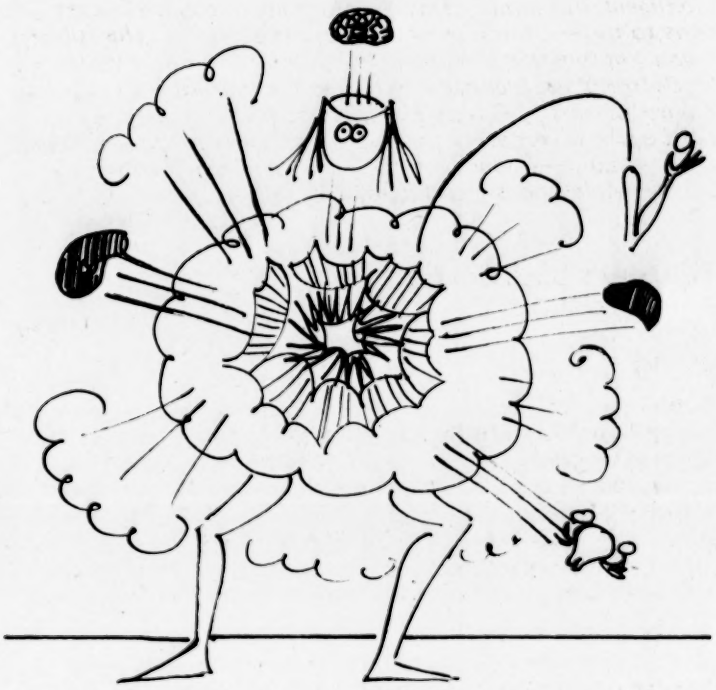
Jeeves, by P. G. Wodehouse
Horatio Hornblower, by C. S. Forester

My apologies to anyone I've offended by leaving out their favorite (send it in: perhaps I haven't heard), or including a piece of wretched dreck (sorry, but we have no literary pretensions here).

Ben Knipers
Palo Alto, California



Birth Control Pills Are Poison



I'm told that whenever women gather, the conversation soon comes round to contraception problems, the disadvantages and dangers of every method. Lately here at Whole Earth we've been sorting through the gripes in our circle of friends.

The anecdotal evidence against birth control pills is frightening.

- *Two crisp-breasted teenage girls who went on the pill had their breasts enlarge and fall—— permanently.*

- *One fertile lady who wanted very much to have children (later) found that six months of pills sterilized her permanently.*

- *An answerer at the Atlanta hotline, Diane Hughes, reports that she gets innumerable tearful calls from women: "I don't know what's wrong. I'm so depressed all the time . . ." Before they go much further Diane asks if they're on the pill. If they are—— usually they are—— she advises them to get off, and call her back in a few weeks. 80% of the time that was it. Depressions cured.*

- *No one has had zero problems. Everyone complains of the dull loginess that accompanies the pill. Quitting returns their zest.*

- *Everyone complains of pill-caused vaginal problems—— infection, fungus, discharge, expensive antibiotic treatment (which has its own side-effects). Some of these go away with stopping the pill, some stay.*

- *Everyone feels somewhat <u>had</u>—— by their gynecologist who prescribed the pill without warning, by the gynecologist again when he takes their money for return visits he has caused, and not only fails to sympathize or treat effectively, but suggests that their symptoms are psychosomatic . . . and by men in general who neither understand the problem nor participate in solving it. (That might have something to do with why I'm writing this.)*

OK. What's better?

Unwanted children isn't. Abstinence isn't. The IUD isn't (unless you like pain, copious bleeding, and the possibility of perforated organ walls; one friend of ours found that the pain of insertion brought on a new experience, an epileptic seizure). Foam is not particularly effective. Nor is rhythm. "Astrological birth control" seems to require 15 days/month of carefulness.

What's better:

Some combination of:

1) Diaphragm and jelly
2) Condom
3) Non-intercourse lovemaking
4) Lunaception maybe (see article following)
5) The cannula abortion if above fail

Reportedly a recent survey of women sex professionals in Berkeley—— researchers, therapists, etc.—— revealed that 8 out of 10 of them used the diaphragm. Apparently the major disadvantage of the method—— the awkward disruption of putting it in—— has been overcome, presumably by incorporating the deed into foreplay. The man is likely to do a better job of inserting it anyway (easier angle, visual guidance, enjoyment). Now if only the jelly tasted better. (But it never will, so schedule accordingly.)

A gentleman always carries a condom.

In all those instructions on rhythm the implication seems to be that what you do during the fertile days is nothing. Or bowling. Cold showers. Argue a lot. Creative couples, however, have always found abundant alternatives to the penis-comes-in-vagina rut, which explains why the world is not overrun with Frenchmen and Greeks. Consider. For the clitoris and/or vagina there is tongue, lips, thumb, forefinger, middle finger, of the right hand, left hand, both hands, own hand, thigh, forehead, vibrator. . . . For the penis there is mouth, right hand, left hand, both hands, own hand, ass (slowly, with plenty of oil), pubis, hair, sundry cleavages, vibrator. . . . A wonder that anyone ever conceives.

It mostly goes without saying that homosexual relations are 100% effective in preventing unwanted pregnancy.

As for the "Lunaception" method following, will readers who try it please let us know how it goes? It could be a breakthrough.

Among abortion techniques the best is still the recently-developed "cannula abortion", which uses a small plastic tube, minimum time and expense (about $100 in most clinics). Consult nearest Planned Parenthood office for directions. (More details, EPILOG, p. 607.)

In other words birth control is complex, as complex as the body and human relations. The pill was a panacea. <u>All</u> panaceas are poison.

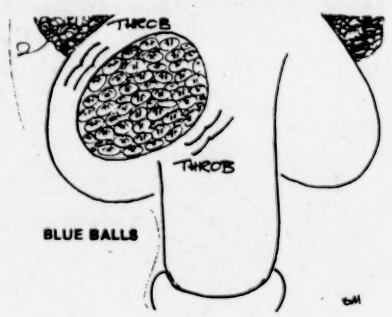
—SB

The Joy of Birth Control

Intelligent, humorous, densely informative (there's A LOT of news to me)-- this is now the best little book on the subject. It was put together in Atlanta last summer by two Whole Earth irregulars, Stephanie Mills and Diana Fairbanks, for the Emory University Family Planning Program. The book thoroughly covers every method-- advantages, disadvantages and technique-- illustrated with cartoons and charmingly pornographic photos. Indispensable, I'd call it.

–SB

The Joy of Birth Control
Stephanie Mills
1974; 41pp.
$1.00 postpaid
from:
Emory University Family
Planning Program
Box 26069
80 Butler St., SE
Atlanta, GA 30303
(orders over 50 cost less)
or Whole Earth



When the sperm reach the epididymis they are mature in form but not in function, so they have to linger there a while to get their batteries charged with enzymes in order to move independently. When that happens, they are all dressed up with some place to go-- out. If they don't make it out, and get backed up in the epididymis, the pressure of their crowding combined with the pressure of blood in the tissues may result in blue balls, rock aches or lover's nuts.

When a man gets turned on, for whatever reason-- fantasy, masturbation, or dedication to the one he loves-- the sperm move into the vas deferens, the most highly muscular passage in the body. The brain organizes an erection by causing more blood to flow into the penis than can flow out of it. The blood gets trapped in venous lakes, and causes the penis to get bigger and harder. The *biological* reason for all this activity is to turn the penis into an efficient mechanism for getting the sperm as close to the egg as possible. Expansion of the penis heightens the sensitivity, though, so erection's not a totally mechanical phenomenon, as you've probably noticed.

As the big moment approaches, the vas deferens begins to contract and the sperm move into the urethra. The seminal vesicles secrete fructose, a sugar, into the jism to fuel the sperm on their journey. The prostate gland adds an alkaline liquid which will help to neutralize the acidic environment of the vagina. Sperm plus these ingredients is the recipe for semen.

Meanwhile, the bulbo-urethral glands are secreting a fluid which both clears out any urine remaining in the penis and lubricates the path of the semen. (Because the mixture of sperm, prostatic secretion, and seminal fluid is thick and would be sluggish if the skids weren't greased.) Bulbo-urethral secretion may also clear out any sperm remaining from the last ejaculation and so become the notoriously potent "lubricating drops" referred to in our section on withdrawal.

When an orgasm happens, the prostate gland, the seminal vesicles, and the vas deferens all begin to contract inside the body. The penis itself contracts, and in a really terrific orgasm, muscle groups all over the body will contract, too. The upshot of all that frantic contracting is that our friend the sperm, along with half a *billion* of his buddies, gets flung into the vagina (or the hand or the mouth or the condom or the baseball mitt) in the famous loving spoonful. The whole glorious trip from the epididymis only takes a few minutes.

If it only takes one sperm nucleus to unite with the egg's nucleus and fertilize it, why are there 500 million advance men? Many are called but few are chosen, because there is a series of obstacles which partly serve to weed out the weak or faint hearted sperm which might have less chance of survival.

PILL SIDE EFFECTS

The following are most common during the first three months of use:
- —insulin suppression (which is why diabetics probably shouldn't take the pill)
- —fluid retention causing contact lenses not to fit, weight gain, headaches
- —cramps, not necessarily menstrual
- —lessened milk production (if you're nursing you probably shouldn't be using combined birth control pills because they decrease milk flow. Mini-pills are not likely to decrease milk flow. Hormones from birth control pills are present in breast milk in very small quantities. So far there's no evidence this harms infants.)
- —blood clots in the pelvic veins, in the retina, in the lungs or in the leg veins. (Legs are where clots often start. For this reason, if you have to wear a cast on your leg, quit taking pills and use another method.)
- —nausea
- —fluid retention, breast tenderness
- —breakthrough bleeding
- —lighter periods
- —acne (some forms)
- —increase in fatty substances in blood
- —high blood pressure (regular tests are necessary to detect it)

The following side effects are constant throughout use. There's no time when they increase, or when they taper off:
- —increased vaginal discharge
- —hearing your own voice too loud
- —dizziness, stiffness, vertigo, cold hands, sweating—all related to constriction of the blood vessels
- —strokes
- —headaches
- —anxiety, depression
- —change in sex drive
- —acne (some forms)

Some side effects may worsen over time:
- —weight gain
- —hair loss, or increased hairiness
- —chloasma, or mask of pregnancy
- —tiny blood vessels near the surface of the skin may break
- —weakening of vaginal walls
- —dry, thus inflamed vagina
- —growth of fibroid (non-cancerous) tumors of the uterus
- —breast cysts (non-cancerous)
- —high blood pressure
- —gall bladder disease or jaundice
- —heart attack
- —yeast infection
- —missed periods

Some side effects are most noticeable after you go <u>off</u> pills:
- —hair loss
- —acne (some forms)
- —infertility—A small number of women (less than one per cent) have trouble getting pregnant after they stop taking pills. If you want to have a baby, quit taking pills six months to a year before you plan to conceive.

If after reading this, you're still calm enough to hold onto the page, you may be comforted to know that nearly all of the above mentioned side effects are reversible by quitting pills. Chloasma may not be, and need we say that strokes and heart attacks aren't either. Remember the warning signs:
- —severe headaches
- —sudden blurring or loss of vision, a sensation of flashing lights
- —severe leg pains
- —chest pain or shortness of breath

If you should experience any of these call your doctor immediately. Don't wait to see if these problems will go away.

CONTRAINDICATIONS

Women who have, or have had any of the following problems <u>absolutely</u> musn't use pills:
- —Blood clotting disorders
- —Strokes
- —Cancer of the breast or of the reproductive organs
- —Serious liver disease, especially recently
- —Cystic Fibrosis
- —Pregnant women shouldn't take the pill

Women who have any of the following problems <u>probably</u> shouldn't use pills. If they do, they've got to be very cautious —that means being under a doctor's supervision.
- —Undiagnosed abnormal vaginal bleeding
- —Migraine headaches
- —Severe liver disease during pregnancy
- —Family history of diabetes, or diabetic tendency
- —Mental retardation, which can make it hard to stay on a pill schedule
- —Inability to return to your doctor or clinic for regular checkups and new supplies
- —High blood pressure
- —Sickle Cell disease
- —Women who have had a baby within the past month
- —Nursing mothers

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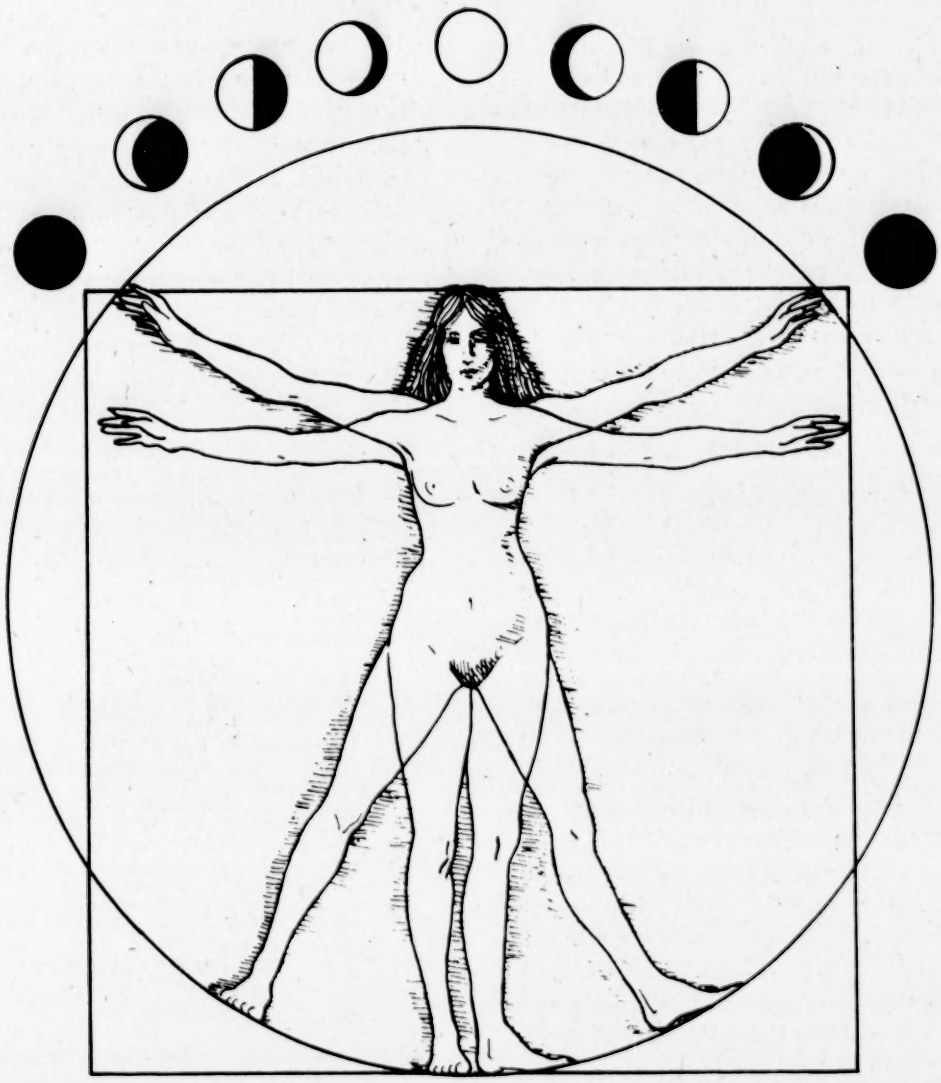

LUNACEPTION

BY LOUISE LACEY

Drawings by Susan King Roth

***Home Science** is what this is. The best example we've ever seen. Louise Lacey took the discomfort, asked a question with it, got a nod from the universe, added more work and friends, and sent the results to us (after* **Clear Creek**, *who went under before publishing). We get a lot of material from friends. An article coming in like this from a stranger is even more exciting.*

Gay Luce, authoress of the authoritative **Body Time**, *comments: "This article is an inspiration to anyone who takes health seriously-- and realizes that the most crucial step is self experiencing, listening to the voices of one's inner nature. The truth is I'm lazier than the author, and her message really got to me-- I would like to be more tuned in to the rhythms of this planet before I get much older; and I'd like to be in synch with the phases of the moon rather than just feeling the effects on my scattered life activities. I hope this goes to every gynecologist."*

—SB

Every time I begin to congratulate myself, thinking I have acquired some Answers to Life's Important Questions, something happens to illuminate yet another aspect of my fundamental ignorance. Mocking finger pointing to a cold plate of humble pie.

So, predictably, just when I thought I had made all the necessary adjustments to my womanly self-image, I went for my annual examination at Family Planning. "You have a lump in this breast," the young doctor told me. "You'd better see a surgeon."

I guess no woman is ever prepared for the prospect of breast cancer. Certainly I wasn't. It seemed to me that I had withstood the psychic batterings of the media (DOCTOR SAYS WOMEN'S LIB MAKES MEN IMPOTENT), friends ("You drive a car just like

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a man"), and even the occasional passerby ("Are you liberated, lady? Or do you want some help with that flat tire?")-- only to be betrayed by my own body.

Thinking about what I knew about the prognosis for a woman of my age and medical history with breast cancer, I wasn't reassured. I had no medical insurance -- not enough money to pay for a visit to a second rate surgeon, for that matter. Whenever I thought about it, I broke out in a sweat. (Ladies don't sweat, dear, they perspire.) After nerve-wracking weeks of bureaucratic delay, I managed to secure an appointment at the university medical center. In the surgery clinic I was examined down to my toenails, and my breasts were squeezed and palpated by a succession of silently grave medical students.

After two muffled conferences in the hall with his students, the chief surgeon finally delivered me his verdict: What I had was not a tumor, but what he called a fibroid mass. He said it was not malignant, that he didn't even want to do a biopsy. When my heartbeat returned to normal I began to understand the other things he was saying.

While the phenomenon wasn't new, a lot more lumpy-breasted women were turning up after taking The Pill for many years. He couldn't know for sure, of course, because The Pill is something new in the history of medicine, but he thought that the masses (for I had several by this time) wouldn't become cancerous at a later date, either. At any rate, he advised me, I could be likely to keep getting more so long as I kept taking The Pills, and I would have to keep coming back to the center for squeezing and palpations every few months in order to insure that no real cancers lurked behind the innocuous masses.

I had considered myself pretty well informed on the subject, but I had never heard about this aspect before. I asked him why such pertinent information wasn't more generally known. He replied blandly that with all the fear and hysteria recently surrounding The Pill, which was, after all, the most efficient method known, doctors didn't want to add more fuel to the "emotional fire."

Thanks. I'll take my hysteria and my lumps and go home.

That was the last day I took The Pill.

On one level, stopping was a vast relief. I had always had reservations about manipulating my hormonal balance with birth control pills. Yet I knew myself to be extremely fertile; I had used nearly all the other methods of contraception each with a demonstrable lack of success. So I took The Pill-- for ten years. Now it felt good to be practicing what I had believed for a long time about the natural balances of the body, best not artificially regulated or perverted.

But on another level I did not feel good at all for being totally vulnerable again. I did not want to get pregnant. The alternatives to exposing myself to the risk weren't very appealing. I couldn't see anything in masturbation or lesbianism, yet I didn't appreciate the idea of involuntary celibacy, either. I had run out of possibilities. I was left only with abortion.

I know that many women pay little attention to the matter of their fertility. They take their risks thoughtlessly, and absolve themselves of the consequences with routine abortions. Why couldn't I do that? Modern medicine provides me with not only one but two cop-outs from pregnancy: I could either violate my body before (with The Pill) or after (with an abortion). Was it science's fault I wasn't comfortable with either alternative? My slip of prejudicial feeling sometimes hangs down below the hem of rationality. When that happens I occasionally feel a momentary bitterness at the kind of technology our culture practices.

Back before The Pill I had an abortion. A classic tabletop affair. At the time I thought it was the only thing to do and had few moral qualms about it. I

Cartoons by Stephanie Mills

was more involved with the pain and the expense and the fear. The experience was so stark and so immediate that I had to deal with the reality of it. No sterile white wall or impersonal professional participants helped me to disassociate. The grease floating on the top of the pan of hot water; the hollow crunching sound ("There's bones to break, girl"); the chilly damp smell of mold-- they all made sure I paid attention to what was happening. I decided right then I would never do that again.

Now, ten years later, I reopened the proposition with myself. Wouldn't I be justified today, when cheap and safe abortions are so easily obtained? But the more I thought about the subject, the more sure I was I didn't want any more abortions. I believe wholeheartedly that people should be able to do with their bodies as they please, but I couldn't find any way around the fact that, in my own value structure, deliberate abortion is killing, no matter how developed the embryo. While I would not call myself a pacifist, I can only see murder as a very serious matter, certainly not something I would decide to do

except under extraordinary circumstances. So abortion was still not for me.

There seemed no way around it: I must be responsible for what I conceive. I don't want to close the issue permanently with sterilization because I want to have my own family, but I'm not yet ready for that. I want to continue to be able to choose not to have a baby until the time I decide to have one. If I don't make that choice it will be made for me. Therefore, I cannot help but conclude, my responsibility is to not get pregnant until I am ready.

So began my search for another alternative. I don't know what I would have done if I hadn't been going through a hiatus in my love life at the time. As it was I chafed at the restrictions of celibacy for several months, vainly contemplating the spiritual benefits of unexpressed sexuality, before I happened on a short piece in **New Scientist**, a British magazine, about an amazing experiment:

A team of young doctors in a Roman Catholic hospital in London, beleaguered by taunts about the ineffectiveness of the rhythm method, and intrigued by some studies about how light affects the ovulation cycles of many living creatures, decided to do an experiment with some apparently infertile women who visited their clinic.

The experiment was simple. Farmers have been leaving the lights on in chicken coops at night to improve egg production, as they call it, for years. The doctors did the same for their experimental women. Each was instructed to sleep with a night light burning in her bedroom all night every night. That was all. After just a few months, most of the women had regularized their menstrual cycle around 29 days, and were ovulating predictably on the fourteenth night of the month. Most of them went on to get pregnant—— something they very much wanted to do.

The implications hit me in the funnybone. What a ridiculous idea: if a woman sleeps with a light on, her cycle will be regular. Why should that be? It wasn't even a very bright light. I've learned that I can usually find a very recognizable pattern in Nature's plan, but I couldn't figure where Nature's order was there. It was funny because it was such an outrageous concept. Nothing I knew about my body or its place in biology offered me any insight into why a light should have anything to do with ovulation or regularity.

Still, my curiosity was aroused. I would have followed even more curious paths at that point to find a way out of my dilemma.

I went back to my books and reread some Dubos and Dobzhansky on the evolution of man. Was this some strange mutation, or did light trigger a body response evolutionarily adapted for some unknown reason? I found no answers there. Rereading some old anthropology, I rediscovered the interesting observation that many non-technological societies, both in the past and present, segregate women at the "dark" of the (new) moon because they are considered unclean during menstruation. But what did the dark of the moon have to do with menstruation?

Whatever I might think about these cultures' concepts of cleanliness, I still had to acknowledge that they were dealing with the subject within some sort of rational framework. That is, they sent all the women away at the same time of month because they were all menstruating at the same time of month. Otherwise, the dogma would have been to send the women away as they menstruated, whenever that was.

How could it be that those women were all menstruating at the same time? Any random sampling of my friends, or simply women off the street, would not give a schedule like that. Urban, technological women have their periods scattered throughout the month. I wondered what profound difference between the lifestyles or environments of technologically primitive and developed women would account for the fundamentally different rhythms.

And what, if anything, did light have to do with that?

A newspaper item gave me my next clue. A study, conducted at the John Rock Reproductive Clinic for infertile women, used another method of light-as-instigator-of-ovulation. The experimental women still used the light-while-sleeping idea, but this time the light was a 100-watt bulb, burning at the feet of the bed on the floor, so as not to shine in the sleeper's eyes but to reflect off the ceiling and walls. And this time the light only burned three consecutive nights out of each month. Several possible sequences of three were tried, but none had any effect on ovulation at all—— but one. And that one was noticeably effective: When the light was burned on the fourteenth, fifteenth and sixteenth nights of the month (counting from the first day of the period as day one), previously irregular, infertile women were able to entrain their ovulation cycles into a regular 29-day rhythm, ovulating predictably on the 14th or 15th day.

What kind of light might have evolutionarily affected

the human woman's body three nights out of the month? The answer to that question came to me with the certainty of an inspirational bolt of lightning: The full moon.

I could hear figurative cries of "mysticism" from the gallery, but was not deterred at that point. The path got more and more interesting.

Remembering something in an anthropology book, I looked it up again and was referred to the works of M. Esther Harding and Robert Briffault, people who had studied in depth all the available literature about connections made all over the world, and throughout recorded history, between women and the moon. References to an association between women and the moon are almost universal in human culture. Most languages show a common root between menstruation and the moon—— including English. Why should all these different cultures have made the same connection? I couldn't believe interplanetary conspiracy theories; more likely was the possibility that all those peoples made a connection between women and the moon because there was a connection.

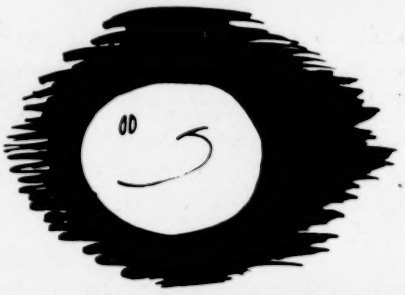
Just about that time I stumbled upon a copy of Gay Gaer Luce's book, **Body Time**, and found she'd already figured the whole thing out. She mentioned one of the fertility clinic studies I'd read, and told of others. Great numbers of living things—— and even the oceans themselves—— live in a rhythm with the phases of the moon. Why should humans be exempt from this common biological occurance?

Beginning to take the idea seriously, I started to puzzle out the possible biological mechanism. How does it work? What makes the female body respond? And why? Does Nature actually have her own built-in fertility regulator, if we could only recognize it?

By this time I had committed myself to the pursuit of an answer to this question, no matter where it took me. I went back to the university medical center, this time to use the library. I looked up references cited in **Body Time**, and found others, too. Dozens of studies, I found, had been done concerning light and ovulation, a number of them related to human beings. All the studies concluded that light was a potent force in the ovulation of females. And I could find no evidence to the contrary.

Of course. For the entire evolution of the species, the only time a human female would be sleeping in light would be when there was a full moon shining. Her body and the bodies of every other woman in the world would be triggered by that light. So that meant that all women would be fertile at the same time, and all women would menstruate at the same time.

I found a support mechanism for this ingenious system in one of the medical journals: Women who live together tend to synchronize their periods; the researchers thought the body is cued into this by smell on an unconscious level. This is an example of a common biological mechanism: One gets them all going; a mechanism observable in startled birds, inquisitive monkeys—— and, apparently, menstruating women. Women in non-technological societies live much closer to one another than women do in the so-called advanced societies.



"The only time a human female would be sleeping in light would be when there was a full moon shining."

But now something more than half the women in the world live under the ubiquitous influence of electric lights. More often than not, shades are drawn against the world outside. . . and the skies above. Even if they are not, the menstrual cycle was set into a random pattern years before by a protective, if modern, mother who made sure her daughter never undressed in front of an uncovered window.

The whole idea made so much sense to me. Yet as I read the books and articles and abstracts at the university medical library, I found that the medical people who acknowledged "parallels" between the light rhythm and the moon rhythm considered the relationship a mere quaint observation. I couldn't find one who didn't avoid dealing directly with the question. So while the idea had been tentatively

proved valid, it had never been carried any further. The last reference I could find on the specific question of light rhythms and human females was five years old. It had been shuffled off into limbo.

I could think of several reasons why no such study might have been made:

Reason One-- The Marxist Approach. The drug companies are making literally billions on versions of The Pill and other purchasable contraceptives, and would have scant interest in a method that didn't require a consumer purchase.

Reason Two-- The Generalist Approach. Almost everyone in science is intensely over-specialized, and few do much synthesis. Medical researchers may know that hospitals receive many more cases of imminent birth at the full moon, but they pass it off because they don't know about the farmer and his chickens, or the anthropologists' unclean women, or the findings of the marine biologists, etc. And each specialist tends to be dubious of the value of other specialties.

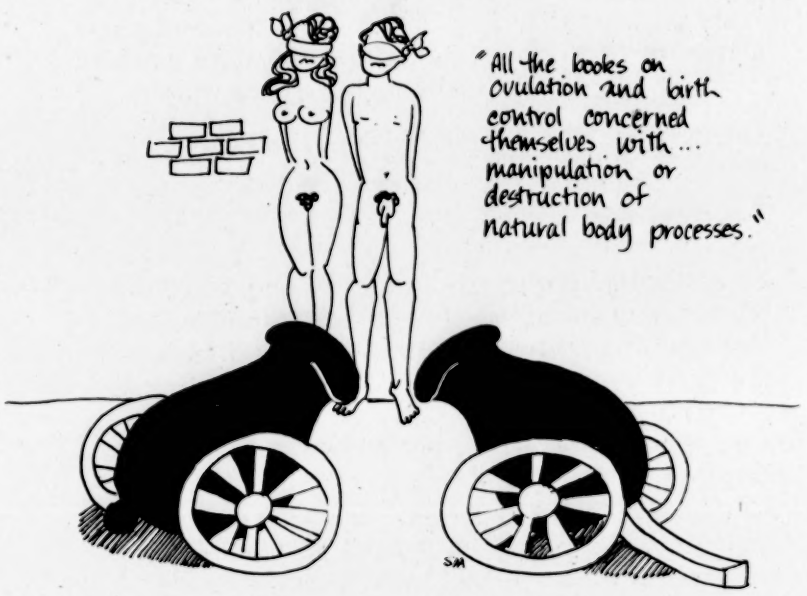
Reason Three-- The Social Cynic Approach. Americans are so conditioned to putting faith in technology and despising our bodily processes that women wouldn't go to the trouble of getting their bodies back into step with Nature. They want a prescription, something in a bottle or a dispenser.

Whatever view I might subscribe to, it seemed clear to me that the established order was not interested in reestablishing women into their natural rhythm with the moon. If the idea were to be tested at all, it would have to be tested by the women themselves.

The medical library was a treasure of information, some of it useful, but most of it horrifying. The horrifying things fell into a pattern. Except for those detailing the rhythm method promulgated by the Roman Catholic Church, all the books on ovulation and birth control concerned themselves with systems and tools producing manipulation or destruction of natural body processes. The method, whether it aimed to kill the sperm, convulse the uterus, or overload the hormonal balance, was always violent, and never took into account natural synchronies in a healthy body.

And the rhythm method of The Church was unreliable because, in technological societies where it is practiced, women don't all ovulate at a consistent time month after month. Looking back on it, seeing how the women's bodies were deprived of the immediate influence of other menstruating women and, especially, the periodic light of the full moon, it seemed wonderous to me that there is any regularity to women's cycles at all.

Today science offers a range of choice in contraception from spermicide foams to dilatation and curettage. On their own initiative, women have used carbolic acid as a douche and coat hangers as abortion tools. All the methods have in common their approach: They attack the problem, rather than


"All the books on ovulation and birth control concerned themselves with... manipulation or destruction of natural body processes."

understanding and respecting the normal balance of the body with its environment. Indeed, the existence of any balance is explicitly denied.

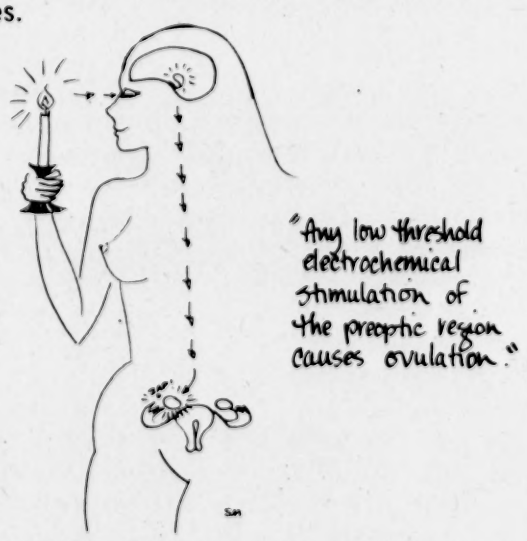
For all this depressing information, my trip to the library did clear up one final mystery for me. I found the answer I was looking for in a gynecological journal. It said that, given the proper situation, "any low threshold electrochemical stimulation of the preoptic region causes ovulation."*

So that's how the moon affects the ovaries!

The source said that light from the eyes is transmitted, even through closed lids during sleep, to the pineal gland.** The pineal is, among other things, the master sex gland.

I went home again to think about how all this fit together, and do some more reading and talking with friends. Two things seemed clear:

Somewhere along the line, technology has affected the bodies of something more than half of the women in the world, through electricity, in such a way that they no longer respond to a crucial rhythm inherent in their bodies.



*Presumably, this refers to the preoptic region of the hypothalamus.

**That's food for speculation on an entirely different level, because the pineal gland has been called the legendary third eye.

And, the moon's cycles can entrain human ovulation. Nature set it up that way. It's her built-in protective mechanism. The experimental light systems worked because they duplicated the action of the moon.

I wasn't laughing at how ridiculous it all was, anymore.

I started using light to regularize my ovulation as soon as I read about the three-nights-a-month idea. Still remaining celibate, I kept a daily oral temperature chart, recording it each day immediately upon awakening, and also daily between midnight and 1 a.m., when I normally went to bed. I measured the temperature both times because I wondered which time would be more accurate. I also experimented with various brands of thermometers, finding that cheap ones, in spite of their guarantees, would give different readings within a period of minutes. The more expensive models-- around $4-- didn't do that.

At first I could find no pattern in the ups and downs on the chart I made to record my temperature. I simply kept doing it. On the 14th, 15th and 16th nights of the month, counting from the beginning of my period as the 1st day, I slept with a light on, first using a 15-watt nightlight near my head, then in later months a 75-watt bulb in the closet across the room, the door half shut. From the very beginning, I could see a jump in temperature at the time of the month that I left the light on.

In the meantime, I talked about the idea with people I knew. My friends expressed great enthusiasm, caution and a lot of hilarity. "Do you mean," asked one incredulous man, "that I could know, by standing outside and looking up at my lady's window at night, whether or not it was safe to go in?"

Another man grudgingly admitted that I might have a sound idea, but professed greater confidence in "that old standby, two aspirin pressed firmly between her knees." Still another urged me to market a trademarked lightbulb, while one more advised me to buy Westinghouse stock.

My woman friends were less amused and saw personal practical applications rather than commercial possibilities.* Many decided to try to chart their body's rhythms for themselves. They didn't see why they couldn't continue to use a diaphragm or foam or condoms while they used a temperature chart and light to capture an image of how their body worked. No risk was entailed In fact, I didn't find one woman off The Pill who didn't express a willingness to try it. They had nothing to lose, and a great deal to gain.

After three months, a pattern began to emerge on my chart. My periods had been shorter than usual, and on the fourth month my ovulation fell into synchrony with the full moon. This was a development I hadn't anticipated! Thereafter my periods and ovulations kept perfect step with new and full moons for several months until a series of severe emotional stresses apparently threw me out of step again. After six months, I returned-- again through the mechanism of shorter period cycles-- to a match with the universe, where I stayed until recently when I went through another serious emotional stress and was again thrown out of rhythm.

Each month my temperature chart followed roughly the same pattern. From the beginning of my menstrual period until the night before I first slept with the light on, the temperature would remain about the same, within a two to five tenths of a degree range. Within the next day or two, my temperature would show a marked fall and then a steep rise the next day. Sometimes the rise would exceed an entire degree. Then the temperature would stay at the higher level, varying as much as a half a degree up or down, until the next period started, when it would abruptly fall back to its original place.

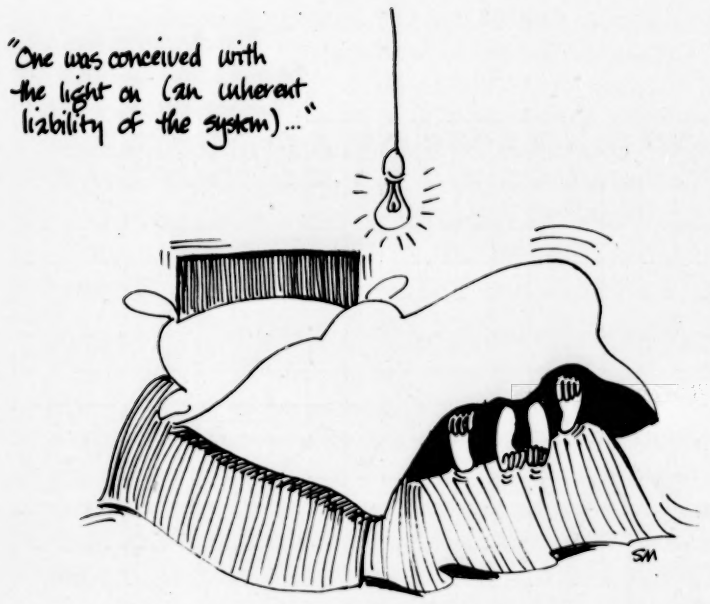
My midnight readings were consistently higher than those I took upon arising, but I could see that the two were dancing to the same medley. I learned to read my chart like a piece of music and <u>feel</u> the rhythm of my body. The chart seemed a better representation of "the real me" than any photograph.

The mid-month-dip-followed-by-a-steep-rise signals ovulation. Medical people call it a "phase shift." I found a 6 to 30 hour lag between the first sign of the crucial dip in my midnight reading and the morning awakening reading. So, while it appeared to me that the morning reading was a more consistent and reliable guide to my hormonal balances, the night reading gave me an early warning signal. I continued for over a year to take my temperature at both times.

Everyone doesn't have a temperature chart just like mine, but some things are consistent among almost all women who ovulate: From the menstruation period the temperature is relatively low until the phase shift; then it rises and stays high until the next period, when it drops again.

I have used the light system for two and a half years. I don't take my temperature any more except to reestablish the cycle when other factors throw it off. I am not nor have I been pregnant. One woman has used this system to get pregnant, and a dozen others are using it to avoid conceiving. Another half a dozen are working to establish their patterns to their complete satisfaction before they throw away their diaphragms. Judging from my own, initially bewildering, experience, I would say that is a good idea. Among nineteen women through a total of more than thirteen years of menstrual months, two pregnancies have occurred unintentionally. One was conceived with the light on (an inherent liability of the system), and the other in a woman just two months post-partum. Her body had not yet readjusted to a balanced state of non-pregnancy.

*Can I infer anything about the difference between American male and female psychology from this?



I gained a great deal of respect for the wholeness of my body during the long time it took to readjust from The Pill to a state of normalcy. It was nearly a year before the last masses disappeared from my breasts, and even now they occasionally reappear briefly. I consider myself lucky; the doctor told me I might always have them. From the beginning, my chart showed a number of irregularities, and I strongly suspect that during the time immediately after coming off The Pill I was ovulating more than once a month. During the days following the phase shift, my temperature during those first few months showed three distinct peaks. In later months only two were evident. I stopped taking my temperature, except to reset the phase, when I could see only one distinct peak. That took more than a year to achieve.

Other "side-effects" following stopping The Pill occurred as late as eight months afterward. The hormonal balance of my body had been hyped up for so long, relying on the artificial crutch of The Pill to supply its essential ingredients which otherwise would have been produced at home, that when I stopped my system collapsed, literally. Dozens of new wrinkles appeared on my face, my buttocks fell, my waist thickened, and my whole torso changed shape. These are all changes that women normally go through at menopause, and reflect estrogen depletion. But I wasn't ready for that. Not at 32.

Another, more subtle, sign of the problem was my disposition. I was more restless and aggressive than usual. And I had flashes of moods which would leave me crying from despair or laughter when there was little cause for either. I had no psychological trauma. My body was simply shorting out independently.

And then, finally, a symptom so literally vivid I couldn't ignore it: My eyesight, myopic since early adolescence, improved radically. For the first time since childhood I could see individual leaves on trees without eyeglasses.

A doctor prescribed a solution for all my symptoms: estrogen pills.

Thanks again. But no thanks, again.

I read somewhere that the body's own estrogen production could be stimulated by increasing consumption of B vitamins—— niacinamide, pantothenic acid, B-2, B-6 & B-12—— and 600 units of vitamin E daily. I took them. Inside of a month the new wrinkles had disappeared and my shape reverted to normal. Even my fanny, to my astonishment, climbed back up. The mood flashes disappeared and my normal personality pattern of contained boisterousness reasserted itself. And finally, my perception of detail receded to an accustomed fuzziness. An awesome preview of middle age; I wasn't sorry to put it back on the shelf for a while, even if it did mean I had to keep my glasses.

I have no idea how long my system would have taken to return to its normal cycle if I hadn't used the light. I can't help but think it smoothed things along. While all this took close to a year, I didn't really feel any sense of urgency. Whatever pace the body chose seemed right to me. The body doesn't like abrupt changes; it associates them with disease and injury. Abrupt changes cause abrupt reactions, which cancel or try to cancel out the changes as Nature seeks her balance. So I guess if the body wants to make its own changes, it will make them slowly. I'm happy to wait and watch. The years of its subjection to technological manipulation can't be purged overnight. It comes down to a simple confidence in the integrity of Nature, and an ever deepening humility about my own capacity to better her.

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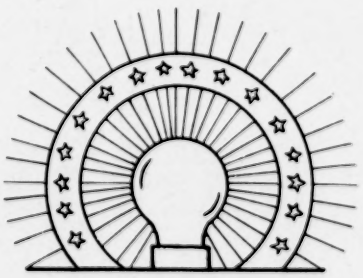


LUNACEPTION

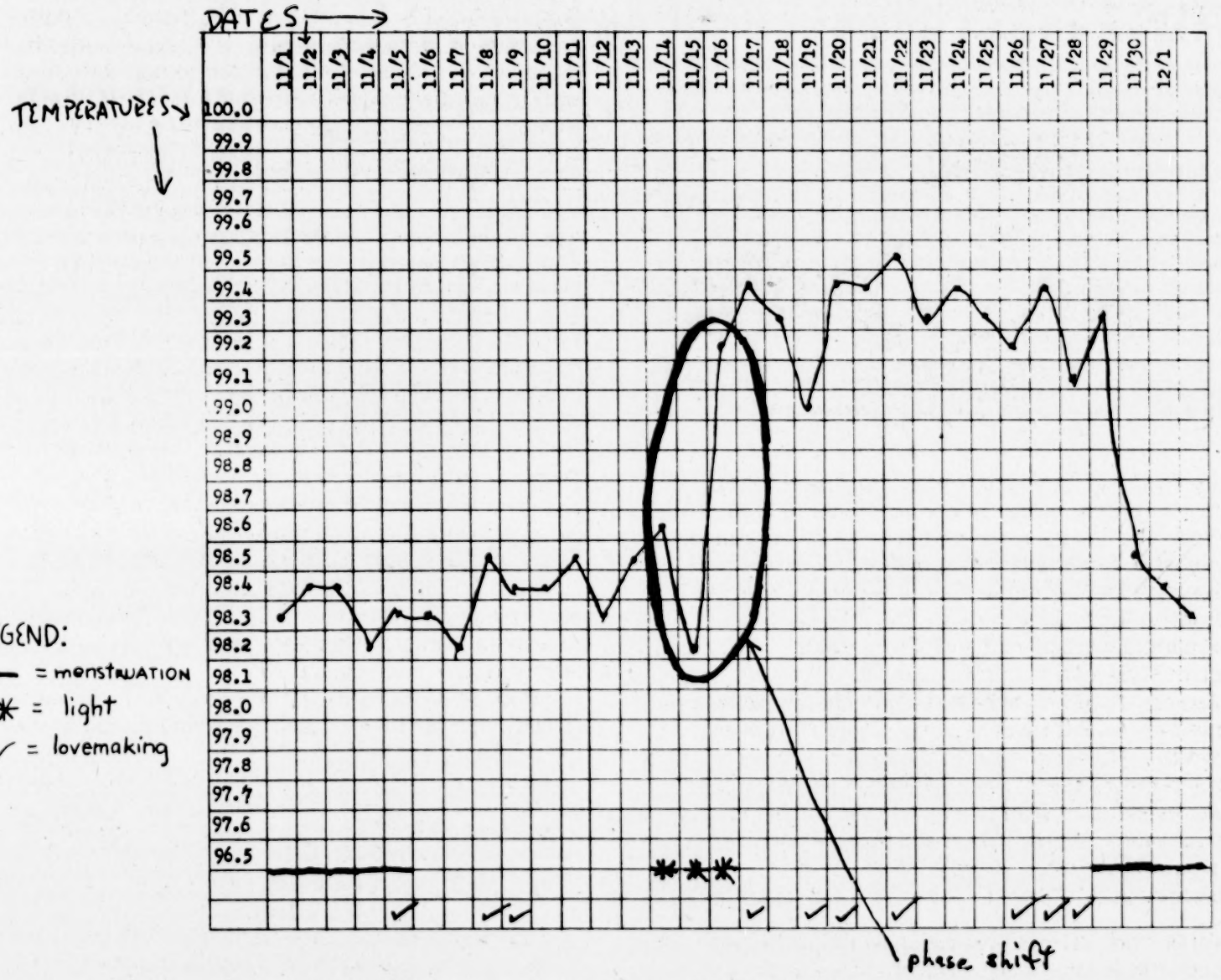
DOING IT

Using a graph on which you will record your temperature you will chart your menstrual and ovulation cycles. By sleeping with the light on three nights a month, you will entrain your ovulation to a regular rhythm. You can and should continue to use any method of birth control EXCEPT The Pill or variations thereof until you have established your rhythm to your own satisfaction.

You will need:

1. **A chart (instructions for making one below);**
2. **A pen or thin felt-tipped marker;**
3. **a good-quality oral thermometer. Don't buy the cheapest, regardless of guarantees;**
4. **Some form of insulation from light in your bedroom;**
5. **A nightlight, lamp, hall, or closet light;**
6. **Conscientious attention to this routine for five minutes a day on a regular basis.**

SAMPLE



MAKING THE CHART:

Buy plain quarter-inch-ruled (¼") graph paper where stationery supplies are sold. Nine sheets of 8½ x 11 inch paper will, when laid end to end the long way, give you more than a year's worth of information.

Start with one sheet and add as needed. With the graph paper positioned so that the long direction runs from left to right, write or type in up and down the left hand side a list of temperatures, by tenths, starting near the bottom with about 97.5 and on up to 100.0.

Across the top, one to a square, list the dates starting with the date you begin using the chart. If you are now using The Pill, wait until the end of your current menstrual cycle to stop taking The Pill and to start using the chart. Otherwise you may start any time.

Decide on a time of day when you will take your temperature. The important thing is to do it the same time every day. A few minutes either way won't matter, but you should do it within fifteen minutes of the same time, every day, seven days a week. So while it may be convenient to take your temperature when you get up each morning, because you get up the same time each day to go to work, if you are in the habit of sleeping in on the weekends that idea won't work. The most effective way to establish a routine is to tie it in with some other daily routine, like meal preparation, make-up removal, etc.

Always keep your chart, pen and thermometer together.

PREPARING YOUR BEDROOM

I believe that technology is responsible for the fact that many women's ovulation cycles are not regular. Street lights, building lights, automobile lights, hall lights, television. . . the list of light "additives" is enormous in any urban community. It is nearly impossible for an urban woman today to sleep in the dark unless she makes special provisions to do so. One way or another, you must find a way to make your bedroom dark. You may have to buy a shade, rehang your drapes, or put a towel along the crack at the bottom of your hall door. See what you can work out. The object is to sleep in the dark except as indicated below.

USING THE CHART

Each day at the same time take your temperature. Do not smoke, eat, drink or brush your teeth for ten minutes before hand. Leave the thermometer in your mouth, under your tongue, for at least four minutes. If you have a cold or other infection, your temperature will not be normal. This is one reason why you need to chart your temperature for many

months. If you do not know how to read a thermometer, ask your druggist to show you how when you buy it. A good quality thermometer (not the cheapest) is necessary because cheap ones are frequently not accurate and will not give you reliable information.

Make a dot on the graph in the column below the date, exactly exactly opposite the temperature the thermometer shows. Draw a line from yesterday's dot to today's.

USING THE LIGHT

Establish a light source of low power in your bedroom. It may be a 15-watt nightlight plugged into a socket near your bed, a 40-watt bulb in the closet, or a dim hall light. It should not be bright, but should be perceptible through closed eyelids. Counting the first day of your period as Day 1, count forward 13 more days, to Day 14, and mark that day on your chart. On the night of Day 14, sleep with your light on. Do the same on the nights of Day 15 and Day 16. Then return to sleeping in a dark room.

READING THE CHART

The purpose of the chart is to give you a visual image of the changes your body temperature goes through during a menstrual month. All women normally go through these changes; women on The Pill or women who have had a complete hysterectomy or who are past menopause do not. The temperature changes are related to hormonal changes of level during the menstrual month. As ovulation occurs as a result of the secretion of a group of hormones, it is possible to get a rough picture of what is happening inside your body by charting your temperature. The picture is rough because your temperature is affected by other things than just your hormonal balance. You may have a cold, etc., which would warp the general trend of your picture.

Generally speaking, the chart will show something like the following:

From the beginning of your period until the night before you first sleep with the light on, the temperature will remain about the same, around a few tenths of a degree. Then there will be a slight fall, followed the next day by a steep rise. Sometimes the rise will be by as much as a whole degree or more. The temperature will then stay high, varying as much as half a degree up and down, until the next period starts, when it will abruptly fall back to the original place.

The mid-month dip-followed-by-a-steep-rise fingers ovulation. The medical people call this period a phase shift. While a phase shift covers a period of 48 hours, ovulation takes only a few moments, and the fertility of the egg only lasts for about eight hours. As you cannot know which eight of the 48 are fertile, you should abstain for the whole period. Also, sperm have been known to live for 48 hours inside a woman's body; if they are there and waiting for the moment of ovulation. . . . This is why you should abstain from sexual relations for a full five days, two days before you use the light, and the three days you use it.

You can use your chart to indicate not only the days when you are menstruating, and the days when you sleep with the light on, but also many other things. You can mark the days you make love, the days you feel particularly like making love, and the days when you have no interest in sex at all. If you mark your chart conscientiously you will find many patterns you never suspected.

•

MISCELLANEOUS EXHORTATIONS AND SIDELIGHTS

If you are just coming off The Pill, you may ovulate more than once a month for several months. While the lighting regimen should bring you back to normal fairly quickly, it is important for you to use another efficient form of contraception, such as a diaphragm, until you are sure your body is back to normal. In any event, anyone trying the Lunaception method should do the same until she can see a consistently recognizable pattern in her cycles.

* * * * *

According to Masters and Johnson, some women sometimes ovulate when they have an orgasm. You can find out if you are one of those exceptional women by keeping a close watch on your temperature chart. If you are, you will need more protection than the light regimen can give you.

* * * * *

You can also use your chart to measure other cycles, too. You will find you have rhythms of physical activity, self-image, mood, coping ability and even in the subject matter of your thoughts.

* * * * *

If you are alert to it, you can notice changes in your vaginal discharge and nasal mucus at ovulation.

* * * * *

Sleeping in the dark during menstruation may make your periods shorter and heavier. This has happened with nearly all the test women in my test group.

* * * * *

Hallucinogenic drugs with an anti-seritonin effect—— LSD and mescaline—— have been known to cause ovulation when taken during the mid-quarter of the month. Lunaception users should avoid them from days 10-17.

•

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—Salli Raspberry

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MASTURBATING TECHNIQUES

PRESSURE: Some women achieve orgasm by pressing the thighs together and squeezing and tensing the muscles. This is done in different positions, squeezing and pressing rhythmically. It is impossible for me to experience orgasm this way, but some women do. I require more direct stimulation. The pressure technique is great for buses and planes and sitting in waiting rooms.

WATER: Some women have orgasms by letting water run on their genitals. The amount of pressure can be controlled and the water is symbolically pleasing. This is especially good for women who find it difficult to touch their genitals, and the bathroom offers privacy and security. Never use your vibrator in the tub or shower. Water and electricity, as you know, do not mix.

HAND: This is perhaps the most common form of self-love. I always use an oil or cream. Saliva works but it dries too quickly. Also, reaching inside and using your own lubrication is fine. For me the slippery, moist feeling of oil on my genitals is a turn on. You can use one finger or your whole hand. Try circular motions, above the clitoral body, below, on top, or to the side. Every woman is different, so different strokes for different folks. Experiment with several techniques, observing the arousal potential of each—— going slow, fast, soft, firm. You can lie on your stomach, your side, your back. Try putting your legs up and also stretching them out. Try sitting up, standing up, watching in a mirror.

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. . . . . "telling him about it opened up my feelings because he was relieved! But it took me a long time before I could actually do it in front of him. It's much better now because if I don't come with him I masturbate while he kisses and pets me."

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One of those calls was long distance to Kansas—— to my mother. She was sixty-eight, living alone, a widow of several years. I started right off with, "Mother, are you masturbating to orgasm?" There was a sputtering pause and then she came right back with, "Why, Betty Ann, of course not. I'm too old for that sort of thing."

I immediately launched into my whole rap about the connection between good health and orgasm. If nothing else, she should do it just as a physical exercise to keep the lining of the vaginal wall lubricating, the hormones secreting, and the uterus contracting. Besides it was a great way to relax and unwind, and it might reduce some of her lower back pains. She could also do it just for fun. Her response was, "Well, honey, I don't know. What you say does make sense. You have always had such different ideas from most people, but I think you're probably right."

Our next conversation—— some two weeks later—— was beautiful. Yes! she had successfully and very easily masturbated to orgasm, and it was extremely pleasant. She felt she had slept more soundly afterwards, too.

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Lecturing with the cunt slides has been one of the most valuable learning and feedback experiences I've ever had. Beginning with that N. O. W. conference, so many women have told me, "I feel changed by seeing the slides," "Seeing the slides has changed my whole attitude about myself," "I, too, thought I was deformed." One woman, after seeing the slides, asked her boss for a raise the next day—— and got it! She said she felt so much more positive about herself knowing her genitals were beautiful!

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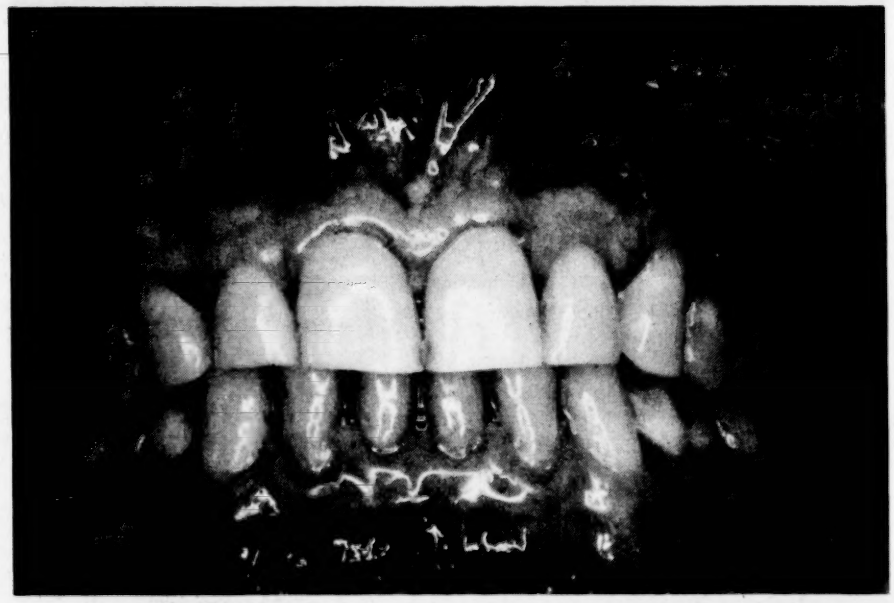
The homework for the week is to observe your own masturbation patterns. The women who are interested can take a vibrator home with them. I have two kinds available. The Prelude, a smaller quieter vibrator, and the Panabrator. (Both sell for about $20.) The Panabrator by Panasonic can be bought in most small appliance sections of large department stores, and the Prelude can be mail ordered from EVE'S GARDEN, 115 West 57th Street, N.Y., N.Y. 10019.

Appearance at first clinical examination.



Preventive Dentistry Primitive Style: A Case History

BY WALTER W. FINGAR, D.D.S., M.S.
AND STEPHEN A. ROSS, D.M.D., M.A.T.

On the wall of the waiting room of Daniel Phillips, D.D.S. a xerox of this article gritted its smile at me and all dentistry. I duly learned of my two new cavities and lousy gums and wrote for permission to reprint.

(Kindly granted by Joanne Carey at **JOURNAL / The Academy of General Dentistry,** *$5/yr (bimonthly) from 211 East Chicago Ave., Chicago, Illinois 60611.)*

–SB

It is well known that primitive man ate harsh, fibrous foods, and it is possible that small particles of his rough diet wedged in the crevices of his teeth caused discomfort. To remove these unwanted objects no doubt he used the twigs, grasses and reeds that grew in the vicinity of his dwelling. From this rough beginning, the crudely contrived toothpick made its inauspicious entry into the world.

In 5,000 B.C. the Babylonians, realizing the potentialities of the stick as a cleansing agent, utilized a "chew stick" for cleansing their teeth. This idea spread from the Babylonians to the Greeks, and from Greece the idea of the "chew stick" was passed on to Roman society.[1]

It is not surprising that these societies used such primitive devices as the "chew stick" to clean their teeth. It is, however, somewhat of a surprise to find such instruments being used today despite the existing availability of so many effective methods for cleansing the teeth and caring for the oral cavity generally.[2,3]

The present case report deals with an instance of the apparently effective use of primitive measures for maintaining oral health in South Carolina in present times.

Case Report

The 63-year-old male patient presented himself to our clinic at our request. We had heard of him through another patient who was resisting a student's efforts to set up a preventive maintenance program for her by saying that she had always brushed her teeth with no apparent success and that her neighbor had never seen a dentist, didn't own a toothbrush and had "perfect" teeth. We had to see this for ourselves,

so we called the neighbor and asked if he would permit us to examine his mouth. He very graciously, even anxiously, consented.

The patient, a farmer, was the magistrate in his area and a most cooperative and intelligent subject for our study. Radiographic and clinical examination showed:

1. a mouth completely free of caries and with no existing restorations;
2. thirty-two teeth in beautiful occlusion;
3. an amazingly healthy periodontium with almost no bone loss;
4. almost no plaque formation, but slight calculus formation on the lingual surfaces of the mandibular anterior teeth and the buccal of the maxillary molars; and
5. no cervical erosion or abrasion, with only normal wear patterns on the occluding surfaces.

The patient's medical history was essentially negative and his personal hygiene very good.

When the patient was questioned, we learned that he had never before indeed been in a dental chair. He said that he had owned a toothbrush for the past five or six years but seldom used it. He was quick to add, however, that he had used a "gum twig" all his life. When asked what this "gum twig" was, he explained that he used sassafras root because it tasted good, that he chewed the end of a small piece of the root until it was frayed like a brush and that he carried this in his shirt pocket, using it after eating anything during the day. The patient stated that he couldn't stand to have anything in or between his teeth so he used this cleaning device often (six or eight times daily). The patient demonstrated how he used the "gum twig", and it was obvious that his method was very thorough and effective. He cleaned the teeth and massaged the gingiva very thoroughly using his method.

The patient indicated that he learned the use of the "gum twig" from his father, who died at the age of eighty-four never having owned a toothbrush, never having visited a dentist and never having lost a tooth.

When questioned about diet, the patient stated a definite liking for raw vegetables (turnips, carrots, etc.) which he often took from his fields, washed as best he could and ate while working.

The patient stated that his wife and daughter had "terrible" teeth, but that their diet and oral hygiene habits were quite different from his. They did not share his enthusiasm for the "gum twig".

The patient had lived all his life in an area which reportedly had no natural fluoride in the water. To our knowledge, he had never been exposed to fluorides to any significant extent.

Conclusions

Some primitive methods of caring for the teeth and their supporting structures can be very effective when applied conscientiously and properly.

There can be no doubt that early environmental factors influenced this patient significantly and that his methods would not have been adequate for many patients.

It is also obvious that this man accomplished for himself somewhat by accident exactly what the practitioner who is preventive dentistry-oriented tries to accomplish with his patients—— plaque control and care of the supporting structures with the resultant decreased need for restoration of needlessly diseased and damaged oral structures.

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Dr. Fingar is associate professor, and Dr. Ross is assistant professor in the department of Operative Dentistry of the Medical University of South Carolina in Charleston, S.C., 29401.

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This article first appeared in the May-June 1973 issue of Journal/Academy of General Dentistry.

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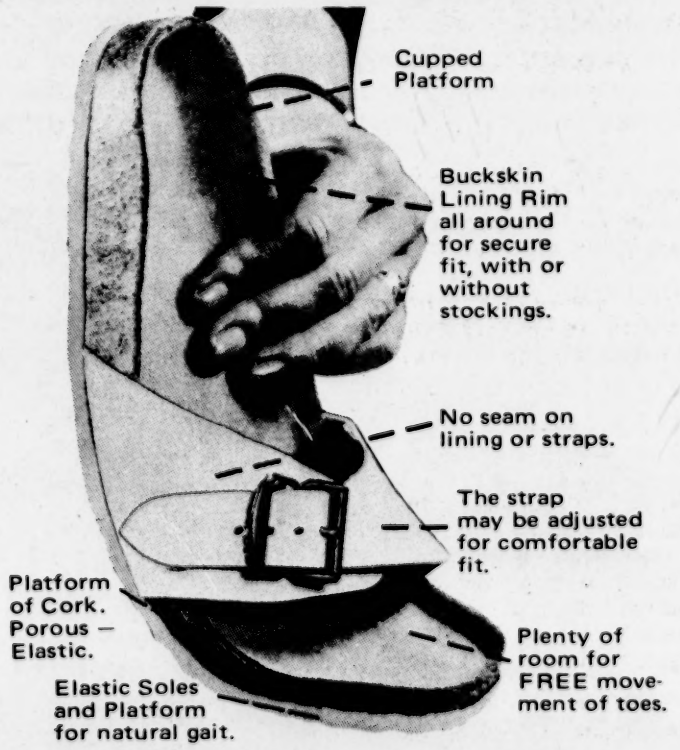
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RICH IS BEAUTIFUL!

BY MICHAEL SLATTERY

"Michael Slattery", 25, is an officer of the Vanguard Foundation, a Sherwood Forest among foundations, where the born-rich Robin Hood themselves.

—SB

One evening last summer, a group of fifteen people assembled in a San Francisco apartment. Most of them were between 25 and 30, dressed in faded blue jeans with sneakers or hiking boots. As they drove up in Volvo's, VW's, or motorcycles, or arrived on the bus, and climbed a rickety wooden staircase carrying grocery bags full of ingredients for a communally cooked dinner, a neighbor watching would have thought it was merely a group of friends having a small party. But in fact, it was quite an unusual group of people, probably the first of its kind ever to assemble in this country. That evening, its members, many of whom were strangers, had arrived from all over the United States. What they had in common was an interest in social change and the means to do something about it: inherited wealth—— in some cases many millions of dollars.

This was the fifth of a series of ongoing meetings which have been organized and run entirely by the participants. The aim is twofold: to discuss the most effective use of money in promoting social change and to share with each other the unusual personal problems that come with inherited wealth.

Ever since Alcoholic's Anonymous, groups with special identities have been meeting together to develop an understanding of how factors from their backgrounds and environments impede them. Group processes help people become aware that both the positive and negative aspects of their identity have to be accepted in order to grow fully and be effective. Blacks study black history, work on community development projects, and fight the long struggle for equal rights. Women join consciousness raising groups, equalize housework with mates, and develop their own careers.

Now rich people are not quite as oppressed as third world people or women, but there are parallels. Talking about the peculiarities of our upbringing helps each of us understand why we respond to certain experiences the way we do. And one of the most important ways to evolve beyond a wealthy background is to give money to support the people who have had the least access to the privileges of wealth, to promote a society where there will be no vast inequities between rich and poor. By providing a forum where we can share our responses to having and using money, our group has helped each of us to grow in our own way.

These are verbatum excerpts of minutes from our fifth meeting. Names have been changed to protect the sanity of the participants.

"There is no reason to be ashamed-- you have just as much right to be happy as everyone else."

MINUTES OF MEETINGS, August 23 and 24, 1974

Here is an attempt at some loose minutes. We ought to consider these somewhat confidential-- I mean, friends and relatives are fine, but it would be a mistake to have these circulated. Please bear in mind that these are gleaned from several pages of scribbled notes. So, don't expect Milton, alright? And I threw in names when I could remember who said things, which was variable, so please don't feel bad if your point isn't attributed or if you're not mentioned.

The people at the Friday night meeting at Michael's house were Wendy Fontana, Rachel Freeman, Paul Griffiths, Carol Latham, Joanne Newmann, Chester Nicholas, David Nussbaum, John Salizar, Dick Stayner, Michael Slattery, Laura Trumball, and Jeff Weitzman. Plans to have split meetings of the "core" group and the new group were canned because Arnold Dobson and Barbara Whetstone could not make it until Saturday.

We decided to split the discussions into four parts for the weekend. The first night would be time for essentially personal questions, Saturday morning would be for discussion of questions which directly involve giving away or somehow using money, the early afternoon would be reserved for Richard Walters, a tax lawyer, and the end of the afternoon would be time to figure out what to do at the next meeting.

To introduce ourselves, we went around the room and each gave a brief history of our backgrounds (what kind of upbringing we had, how we evolved from it or fought against it, how we are still being affected by it, etc.), how we are relating to the money we have inherited (how we were affected by the first awareness of it, what steps were taken to deal with that, what we are doing with money now, what has been good or bad about that), how money affects our personal lives (what lifestyle do you choose, how it has affected relationships with friends, what kind of vacations do you take, what do you do with your children, etc.), and anything else. People spoke for varying lengths of time for about an hour, and we broke for a delicious vegetable casserole culinated by Rachel.

Regrouping after dinner, we started to discuss issues which were basically personal, starting from the question of what level people have chosen to live at. Almost everyone acknowledged that they tried to be as inconspicuous as possible, some to the extent that they kept their background entirely secret from even their close friends, while some would simply avoid it, being open only on rare occasions. The primary fear here seemed to be "will people notice?" and "will that make a difference?" People spoke of experiences where someone treated them one way, then found out they were wealthy, and started treating them in a different way.

Some people described this as a kind of chameleon effect. That is, they try to minimize the differences by identifying economically with whomever they are with. While there is a tendency to couch this process in terms of rejecting the previous lifestyle, some people felt that it was much healthier to think of it in terms of expanding to another lifestyle. Many of us have gone through periods where we lived in urban ghettos, lived in the backs of campers, or hitchiked crosscountry or across Europe with backpacks.

Whereas minimizing differences is certainly important in terms of relating equally to friends and the vast majority of the population, several people also voiced strong feelings that they didn't want to become possessed by possessions. We recalled watching situations where people tried to maintain and oversee large and unwieldy households with the aim of having a comfortable and abundant life, while what really was happening was that these people would struggle and hassle most of each day and weren't even aware that, in human terms, they were more controlled than controlling.

This question later came up using original art as an example. There are sophisticated techniques by which paintings can be duplicated with such detail that laboratory tests are required to be able to tell the original from the copy. Now, why is it that people consider the original to be so much more valuable than the copy, if it looks exactly the same to even the trained eye? The difference in prices would be a factor of thousands or tens of thousands. The original has become deified so that the experiencial meaning is buried under the congitive understanding of what the work is. This same thing can happen to any object: it can be more important to possess than to experience the possession. Given the almost infinite ability to indulge oneself, so much time and energy can be wasted. It is important to allocate time so that it fits into what is really significant and substantial for you.

Unnecssary consumption must be balanced, of course, with what is personally confortable. Some people related experiences of reverse consumption-- of spending an immense amount of time and energy trying to prove that they were not consuming things, and this is not desirable either. The ideal we are striving towards, on the several levels, is to get to a situation where the money doesn't matter one way or the other, so that it can be a resource to be tapped when something important comes up, as well as an aid and an enrichment to daily activities.

Which returns to a previous point: the standard to strive for is to find a living style which does not interfere with your personal relations with other people. Great economic differences can breed hostility, at the worst, or at least warriness and complications. Sometimes differences don't matter much. Other times they can either attract or repel people. You can get confused as to people's real intentions and have to go through alot of bullshit to get down to what is really going on. Of course, this is much more of a problem with people you are getting to know than anyone else. Everyone has friends who they trust and don't have to worry about too much. But sometimes even these friends have to be considered, as times of hardship can make things seem unfair.

What kind of vacations do people take? All of us have had the experience of taking fancy vacations with parents. There are two questions: the first is money, the second is traveling style. As to money, many of us expressed that we tried to minimize specific expenses and were aware of the different prices of things but where unwilling to cut something out simply because of the cost. For example, Chester doesn't think twice about taking a jet anywhere, but he will wait an hour to catch a bus rather than call a taxi. In other words, the money costs should be considered to avoid waste, but most of us didn't want to deny major experiences solely because of expenses.

Many of us traveled through Europe or Africa or wherever

Which one is the Rich Kid?

automatically staying at the cheapest places and eating the cheapest food, without thinking that we were doing anything special. It more or less came automatically. Some did confess to enjoying the comforts and quality of expensive places, however.

There is a certain sense in which vacations are the cream of what is good about having alot of money (although they can be diversionary too). They can help balance out some of the other hassles that money lays on you by providing a way to relax or do new and exciting things.

Most, though not all, of us were brought up in situations where there were servants living in the house. Almost everyone expressed extreme discomfort with this relationship. Some people were called "Miss" by a servant of 50 who you called by her first name. Most agreed that the master/servant relationship was one that we wanted to avoid at all costs; in fact, several people spoke up of avoiding any kind of relationship where you pay people to do things for you. Of course, there are times when you have to hire someone to do things in a technical area where you lack expertise, but this is difference from daily kinds of things that are every person's responsibility.

Some of us had strong feelings about not perpetuating a class structure where some people do menial work for others, work for which they are not adequately compensated. The structure now is highly lopsided and treates to lower half unfairly. David spoke up about wanting to make his daily life and his politics as compatible as possible: in other words, doing in your daily life what you politically espouse.

(See p. 103.)

A consensus agreed that we wanted to get closer to being comfortable dealing with the wealth ourselves, rather than ignoring it and leaving it all up to money managers and lawyers. Some said that doing this yourself takes alot of time and clutters your life in unnecessary and unsatisfying ways, but the skill is a good one to have. This was especially important for the women, as it is more traditionally assumed that they will hire someone to do all of their financial work for them. Joanne felt certain that there would be a time for her to return to her home town to deal with her own finances —— or at least to hire the right people to do it and oversee their progress.

We should strive to take advantage of the possibilities wealth give us—— or at least work ourselves into a position where we

could do this comfortably, without having to feel guilty about being in an unequal position.

Some people expressed fears, which have come up frequently in previous meetings, that people may be relating to them because of their money. But others had not experienced this at all.

Someone brought up the question of how to initiate our own kids to money, especially given the understandings we have all had about the failures of our own upbringings. We didn't pursue this in depth (only John and Jeff had kids).

Joanne expressed frustration about the idea of giving money away because she doesn't see the good, effective things that can be done with it. It is much more important for her to get her own career together before dealing with the question of giving away money. Where or when do you feel it is important for you to start doing something about your money? It hit some people from the moment we inherited it, and some of those did something right away to try to give it away. Others just brooded about the problem and didn't know where to start. Others weren't significantly bothered. It can be dysfunctional to start actively giving away money too soon because the questions of how to use money well are complicated and take time and energy. Perhaps it is best to wait until other personal skills are somewhat developed.

Of course, the other side of the problem is that you have to actually do it in order to learn about it. To completely ignore it makes it harder in the future. And there is always the danger that you'll never get around to it. One question is how directly you do it yourself. Jeff thought the decision making process is really a low level skill and that you really can't feel too good about it. And, anyway, there is very little satisfaction in giving away money.

This also leads to the question of solidifying a firm life and career totally apart from the money, which all of us considered to be an important thing. To develop an identity and some sense of satisfaction is very important. And, to some people, this means being paid for what you do: can you find someone in the marketplace who is willing to pay you for your skill? Wendy did not feel that the money was much of a pressure because she lives entirely off of the money that she earns herself. There were many people, however, who were living almost entirely off of their wealth.

Does the marktetplace always reward the right things? The answer is clearly no. There are many good things that should be done that no one is willing to pay for. Only people with some kind of social conscience are going to invest money for which there is not financial return. In that sense, we have an added advantage and responsibility. For we have the option to do these needed, yet unpaid, things ourselves, while we can also pay other people to do these things.

Some people felt that it is more important to develop your own identity first and then move into doing good deeds. It is more important to develop confidence than to effect the very small amount of change you can do. But, the other side is that you will never have as much confidence as you want, and you have to start giving away money sometime.

The question of giving and loaning money to friends came up. Few of us have had good experiences loaning money to friends, though almost all of us have done it. The bad thing is to put yourself into the position where you feel ripped off if the other person doesn't pay up, and they feel like they're being treated unfairly if you hassle them. It is very hard to maintain a smooth, positive relationship if this dynamic is going on, especially with the master/servant overtones of you being a creditor. Carol got into the position where she is a landlord and has had endless headaches from it. Some of the tenants, who are also friends, have had a hard time making payments-- while they are working hard at worthwhile political work, or as musicians or something, they get paid very little and just don't have enough money. She has had to defer some rent, which is tantamount to a loan. She was very negative about being a landlord and does not want to do it again, though it was a good learning experience.

Chester used the word "poisoned"-- that with friends money can come in and overshadow some of the best things. There are several scams that can reduce this problem, though not alleviate it. One was is to go to a bank and simply use your credit as collateral for a loan. This makes the bank the creditor and you only get called in at the very last stages, which rarely happens. You are also educating the person as to the normal channels that people have to go through and are giving them a better credit rating. Another thing is to take something as collateral, but make sure that it is something you want to hold onto. The last point is that you have to be willing, beforehand, to make the loan into a gift, if it should come to that. Alot of things can happen, and you can't get into a position where you are forcing someone to the wall to pay off a small loan.

So much for Friday night. I'm sure I left out alot of things, misrepresented other things, and made some of the stuff up completely. The Saturday minutes are just taken chronologically from my notes, so hang on.

Saturday morning the core group met for breakfast at the Lawrence's house and brought each other up to date on what had been happening to us since the last meeting in New York. Paul Griffiths, Carl Latham, John Salizar, Michael Slattery, Dick Stayner, Laura Trumball, and Barbara Whetstone were there. We talked briefly about what would go on for the rest of the day, and some people came up with the idea of splitting into two groups, which we had talked of before in previous meetings. We all agreed that the night before had been very good but thought that everyone would have more of a chance to get into things in depth if the group were smaller, especially since there would be 14 instead of 12. Some people wanted to talk about more direct, philanthropic issues than were listed in the second part of the Questions (Lifestyle/Philanthropy) and thought that we might not have time to get to the third part. If people wanted to go over political issues and problems, perhaps they should be in a different group from those who wanted to stay with more personal questions. A shakey consensus decided to suggest this to the new people and see what they thought.

The new people (Arnold Dobson, Wendy Fontana, Rachel Freeman, Joanne Newman, Chester Nicholas, David Nussbaum, and Jeff Weitzman) joined in. Several people protested the split up idea, saying that things had gone really well the night before and why muck it up now. We decided to go around the room and, using the Questions as a guide, saying what we wanted to talk about most, keeping a tally of the preferences. Chester was the first person to go and said that, apart from the list of questions, he wanted to talk about the political and ideological basis of philanthopy and what world conditions lay ahead that would affect all political assumptions. This idea garnered alot of support and was christened no. 37.

The voting went as follows: four people wanted to talk about questions 7 and 8 (what are motivating considerations to philanthropy and how much do you give away), eight and nine people, respectively, wanted to talk about questions 15 and 16 (what is the focus of your philanthropy and how did you arrive at it, and what criteria do you use in setting up guidelines). At least six people wanted to talk about 37. Some people wanted to discuss how to give money anonymously. So, without further ado, we stayed in one group and lumbered on.

Someone pointed out that, if the motivating factor in something is guilt, whatever product that comes out will not be done as well as if there were other, more positive motivating factors. Do people have an inherent responsibility to give away money if they have a surplus? Someone said that Vanguard only incidentally affects change, as it is reactive. How do you focus yourself so that you have concrete influence on a particular area, given that vast problems can be most effectively dealt with if energy is directly applied? Do you fund large or small groups, locally oriented or nationally oriented? The nationally oriented ones tend to be more interesting.

One good notion to strive for is to develop local projects that could be replicated in other areas—— or, in fact, to develop any model project that can be imitated. This is the way to get the highest leverage. How does our society affect its people: does the capitalist system inherently exploit and, therefore, require change before anything else can be accomplished? But, whether it is capitalism or not, do you look for projects which will smoothen the flow of the existing system, or do you support projects which are actively trying to change the system itself? Joanne spoke up for going back to her home area and using money to implement all of the model projects that have been experimented with in other parts of the country. What about working on the "cutting edge" of change? This smoothen/change question is a difficult one—— there are so many good, desperately needed projects that do not attempt to change the system. How do you get the most effect from a limited amount of money?

Someone brought up the point that many of the projects which openly espouse changing the system radically (projects with an openly Marxist line and those that publicly espouse vast change) can be the most bullshit and will either have no effect or will have a negative effect. So, ideally, projects should be working quietly and effectively to change some tiny segment of the society, mindful that rhetoric has no inherent value.

Another point was that the best projects should have some vision of the ideal future society they are working towards, as well as working hard is specific areas using competent methods and accurate information. So few groups have a good idea of what they are actually fighting for; all of their energy is taken up in what they are fighting against. Jeff brought up, and many people agreed, that the basis of the big picture is an attempt to redistribute power, so that people have more control over their own lives and are less controlled by outside forces. Since the major portion of power in this country is apportioned in relation to economic wealth, this should involve a fundamental redistribution of wealth.

One way that the powerless can gain power is by joining together in various organizing efforts, which enable them to pool their economic resources and to exert their "numbers" influence. Organizations with alot of people can exert a surprising amount of power and can insure that an important minority viewpoint is heard. Tenants unions are an example.

Perhaps it is more important to change ideas than it is to change present conditions. Yes, but often the groups most directly involved with changing ideas are the massive studies that don't amount to anything. But, still, ideas have brought about significant changes; so it is best to strive for that. While 95% of the reason we got out of Vietnam was that we could not win, perhaps the other 5% was actually due to the anti-war demonstrations and the constant pressure on the government.

Is philanthropy going to cause the revolution? Unlikely. In fact, how much change can actually be affected? The power of ideas and information cannot be overestimated, maybe. But, in any case, all you can do is your best. If you really believe there isn't the slightest possibility of changing things, it takes all of the excitement out of being here, and you might as well join the League for Sexual Freedom.

Futurology is a field where people try to predict what is coming so that energies can be directed forward. Chester points out that world resource, climactic, etc. factors will inherently be a force for vast change, and we have to predict them accurately to be able to have some incremental influence on the course of the tide. Given the inevitability of vast change, the possibility of apocalyptic sorts of things, we are all going to have to make some massive changes in any case. Several people subscribed fairly heavily to the Armageddon notion: that is, disaster. Alot of how you relate to present choices is based on how serious the crisis is. But this is a vote in favor of doing studies like the Club of Rome, which shook up many things and had a very broad effect. But even the Club of Rome is limited because it advocates further industrialization as the cure.

The question should not be "how much power do we have?" but how much can we and do we affect?"

What is the perfect society? Someone brought up that decentralization of government is important, as centralization and bureaucracy are major problems for both East and West countries. More localized control would tend to be more responsive to people's needs. But an important thing to look forward to is that, in times of scarcity, there will be rising parochialism (groups withdrawing into themselves and not wanting to be interfered with by the outside). The desire for self-determination has to be balanced with an awareness of the good of the whole.

One direction is to give people more meaningful control over the institutions where they work: hospitals, schools, factories, etc. Economic ownership and legal control are key links. Volvo has experimented with putting workers on their Board of Directors. John says that the key balance is to preserve the rights of the minority while allowing the majority to control things.

But, whatever happens, it won't without a struggle.

What are the elements of a new society beyond decentralization and individual rights? It has to go hand in hand with changes in consciousness on the part of individual members of the society. How quickly can people's minds change?

Any system must benefit some at the expense of others.

What is the vision of an economically just society? Money equality is not the point—— what is important is what people get from the society, what services they receive (health, transportation, food, etc.). Equal access to control, equal power, not equal money.

Full employment in the standard sense is not necessarily the goal. The question is how to get more meaningful work for more people. If there is not enough work to go around, then the people who can't get work should be able to satisfy their basic needs. One suggestion is that people could be required to take their 7th year off from work—— this would solve the unemployment problem, at least on paper.

Other experiments are being tried to make existing work more meaningful. For instance, Volvo has teams of workers completing whole cars, rather than the boring assembly line system. Teams have responsibility for their own cars and are allowed a great deal of leeway in how they want to decide to allocate jobs. Most is done on a rotating basis. People can work at their own pace.

Perhaps people working on the shittiest jobs should be given the highest wages. It does follow that, if you get satisfaction

for your job, that this should be considered a part of the compensation, and, consequently, you don't need that much money to make the rest of your life good. But, if your job is very menial or boring, then you have to fill in the rest of your life with something more interesting and should be given more money or material compensation.

Several people doubted that, politically, our Constitution can be improved upon alot.

For many of us, whatever we do is an anomaly, as we are talking about exercising power and using wealth, while we more or less believe in a system where that would not be possible.

Someone then asked if people would be willing to give away all of their money if the right thing came along. How committed are you to actually doing what you espouse, how much of your own security are you willing to sacrifice? Some people said they could give a significant portion of their capital. Others would have to think about it. What percentage of your money do you give away? We didn't pursue this.

How do you evaluate the success of the money you give? We didn't pursue this either.

Someone mentioned the word "guilty" and the discussion degenerated into a more or less personal rap., signalling the terminal length of time that we, as a group, felt comfortable talking about these larger scale problems (we might try to build up our tolerance to complicated problems and try to keep to the topic for the full time). Anyway, the concensus of the people I talked to thought that the morning's discussion had been good and looked forward to pursuing things at the next meeting.

So, we broke for lunch and got some rest.

Richard Walters arrived at 1:30 and gave us a good talk on the mechanical evolution and current state of tax-exempt foundations and private philanthropy. The talk centered around the new interpretations of the 1969 Tax Act and rulings that had been made by the IRS and in court. We talked some about setting up 10-year trusts to shelter assets from taxes. You can set up one of these trusts to benefit a tax-exempt organization, or to benefit a friend, without the friend having to pay taxes on receiving the assets. The trusts pay out income to an assigned beneficiary for the duration of the trust.

Chester brought up the idea that foundations could use their assets as collateral for loans to organizations rather than (or in addition to) giving their money. This is one way that foundations could greatly magnify their effect.

I didn't take notes on this (I guess I should have). If anyone wants to add some points that were made (Barbara?), I'd appreciate it.

We then moved to a discussion of what this meeting has done or not done and what we should do next time. Some people said that it is hard to discuss political issues in the abstract, and that it would be better in the future to have some substantial point around which to center the discussion. This could be done by concentrating on specific areas. Choosing speakers is another way to direct discussions.

There seemed to be a concensus that the introductions were a little unwieldy and took a long time. Maybe each of us could write out a kind of statement about themselves. Not only would this be an interesting and unusual kind of exercise for each of us to do, it would be a good way for other people to get a better sense of where we are at. One problem with this is that people always tend to undersell themselves, which is too bad. We didn't come to any resolution about this.

Someone questioned the "club" atmosphere that we may develop—— how can you get more elitist than requiring that everyone has at least $5,000 to give away each year? Perhaps we could find some way to have non-inheritors participate. A response to this was that we should have people come and speak and that these people would be expected to give us some perspective. After all, almost every day of our lives is spent with people who have not inherited money. Our group is an opportunity to relax and discuss this particular side of ourselves.

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Several people thought that we need to have more talk about the broader political questions that come up with relation to our positions and the use of our money. Someone wanted to talk specifically about political contributions.

We went around the room and asked who was interested in coming to another meeting, and everyone said they were.

Reiterating the point that a fundamental assumption of the group is that all names and specific details of discussions are held strictly confidential, we went around again to see which of us were willing to be considered "public", that is, that our names could be used either as a source for money or just in general. The public people are: David, Barbara, Chester, Paul, Dick and Michael. Everyone else does not want their names used ever (at least in relation to the group or to wealth).

Barbara brought up that she would like to bring her kids to a meeting, as she thinks they would benefit from hearing everyone talk about their experiences with money. There was a general dubiousness around the room, based on the possibility that the kids, being kids (7 and 9, I think), would not feel comfortable sitting around listening to us talk and would start roaming. If they weren't a distraction, it would be fine, but it was hard to imagine that they wouldn't. Anyway, the question was left basically open.

We then decided, after deep soul-searching, not to have the next meeting in Aspen at the beginning of December (some people had doubts as to their self-discipline). The next meeting will be in Boston.

Two dates hassled around were November 22, 23, and 24 and December 6, 7, and 8. The problems were that Joanne would probably not be back from Africa in November, nor would Chester be back from his conference in Thailand. But in December Jeff would have a hassle with his kids because his wife would be away, and Laura would have her exams around that time. We took a vote, and the November date won by one vote. We left the December date open in case of an emergency.

We also talked about having the meeting run into three days, instead of two, so that more could get talked about (especially if there are people flying in from different parts of the country and from all over the world, it makes sense to have a long meeting). This was basically agreed on and the details were left to the steering committee, which had been unanimously reelected (Carol, Linda, Dick, and Michael).

We then move to the question of who we could get to come and talk to us next time. The talker would presumably give us fodder for discussion and would be someone who both has a sense of what is going on and an idea of how money can be used to affect that. There was some discussion of whether or not to pay people to fly in and then whether or not to pay them an honorarium or something. We did all agree that we didn't want people coming who might think that they would have a chance of getting money from us, at least for the time being. We decided to declare it all moot and get someone from the Boston area so that we wouldn't have to deal with the question now.

We all threw out names and voted on them. The names were: Gar Alperovitz, Joan Bartlett, Stewart Brand, Barry Commoner, Dave Dellinger, Bert Deleeuw, Les Dunar, Ping Ferry, David Hunter, Stauton Lynd, Elinor McGovern, Fran Piven, Elliot Richardson, and Gloria Steinem. We decided to get in touch with Fran Piven and see if she can do it. And since this next one will probably be a long meeting, there seems like a good chance that we will be able to, or will want to, have two people come—— so maybe we could get both her and Joan Bartlett. There was also some talk that Joan Bartlett would be a good member of the group herself and that she might be interested.

We mentioned the idea that some people may need somewhere to stay in Boston and decided to all stay at Carol's house, as we understood that she is a soft touch.

Paul mentioned that his real interest is getting money to specific social change groups and that he hoped we would get to a point of talking about specific funding before too long. We briefly discussed the question of new members, and it was agreed that at least one person from the steering committee should talk to people before they are invited to come. Few people thought that there would be a problem with larger numbers (though some did), as this meeting went so well, but there was some acknowledgement for caution. We reiterated the formal guidelines for people: that they are interested in social change and are doing things now, that they give away at least $5,000 a year, and that they do not dominate discussions. The idea came up that it might be good to try this Boston meeting with just the people we have now, to get some more experience as a group and to guard against the noted "honeymoon" syndrome.

We then disintegrated.

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A good case can be made that the children of wealthy families are brought up in deprived situations.

A good case can be made that the children of wealthy families are brought up in deprived situations. Many of them lived in households where their parents were frequently absent, where they were brought up by servants and did not have the advantages of a consistent role model with whom to identify. Many were brought up in large households with plenty of objects, but few friends and close contacts, and were forced to sit through endless, stiff dinners at large tables where they couldn't play with their food. Most did not come into contact with the whole range of classes in our society. One friend of mine was driven to school every day in a chauffeur-driven limousine and hated it, feeling lonely and wishing he could take the bus like everyone else.

When I was growing up, I suddenly realized that there were actually people who didn't live in big houses and go away on vacations all the time. I started to see a widening discrepancy between the way I lived and the way a lot of other people lived. It didn't seem fair, but what could I do? My parents were my parents, and I lived the life they provided for me.

Everyone I knew went to college. Times changed a lot during the sixties, and many people developed a heightened sense of social responsibility. By studying up on social theory and volunteering for work in low income communities, I began to understand that, directly or indirectly, the wealthy class was to some degree responsible for oppression on the basis of race and sex, for United States aggression and destruction abroad, and for the maintenance of our vastly inequitable system. Out industries, controlled entirely by the wealthy, seemed bent on destroying much of the world's natural beauty and making life impossible for various species of plants and animals, including, potentially, our own.

Exploitation by the wealthy came up again and again—— in conversations about the French revolution, in articles about corporate resistance to pollution controls, at anti-war rallies, and in the classroom. Wherever I went, I was constantly battered with the idea that people like me were ripping off the rest of the world. Now, of course, I knew that I wasn't ripping off the world—— but somebody was, and it wasn't the poor people. This became incredibly confusing: I knew that my parents and their friends were generally good, moral, honest people but realized that there was some truth to these generalizations and class analyses.

Then, when I became 21, I came into a trust fund with a lot of money in it. Nobody asked me, I didn't have to do anything—— all of a sudden one day it was there. I was rich myself!

I discovered that, when you have a lot of money, you start getting an income of about 5% each year, no matter what you do. So I started getting an income far above what I could spend, even if I wanted to be extravagent. What was I going to do with all that money? There were only a few alternatives: I could reinvest it, spend it, give it away, or buy things with it. But the choice had to be made.

At first I felt a great elation: "Wow, I can do just about anything I want—— travel, buy camera equipment—— I'm not going to have to work for a living!" I could set up a newspaper or start a company. All I had to do was decide between my options.

But it became apparent very quickly that an abundance of options was not necessarily good, as there seemed to be a subtle trap built into most of them. If I depended heavily on money to do something, such as buy and set up a farm, there was a real danger of using the money to avoid grappling with the kinds of problems that face every other farmer,

problems which would teach me the real roots of the trade. Of course, I could probably learn these roots other ways, but how would I know how much of the accomplishment was me and how much the money?

Then came a whole series of complicated personal questions with friends that I had never imagined before. How could I buy a farm and do just what I wanted when both my best friend and his wife had to work part time while going through school just to earn enough to eat and pay the rent? Simple,

I could just give them enough money so that they wouldn't have to work either! But then how would I choose which of my working friends to patronize, and what would happen to my relationship with the people I was giving $100 a week? And what would happen to my relationship with everyone else when the word started to get around?

As my friends and I were close, I was luckily able to talk about my feeling with them (they said they couldn't imagine taking money from me). But I became incredibly hung up and guilty about the fact that it wasn't fair for me to have all this money while other people didn't. I felt like I wanted to give some to just about everyone but knew that I couldn't. I wanted to give to social causes, but it was so complicated to choose which ones that I didn't know where to start. So I just decided to let things ride and left the responsibility of deciding to the family broker, who, predictably, decided the money should be invested: a cop-out for me in a sense, but as much a step towards self-preservation.

Many young people with money developed a passion for secrecy, having hated the way they were treated during their childhoods when people found out they were from rich families. Recognition often brought a new dimension to the relationship: curiosity, suspicion, attraction, dislike, or a wierd kind of respect, a deference. At times the reaction was powerful, but, in any case, it had little to do with who they really were.

Once a friend of mine was at a party and introduced herself to a person who wouldn't give her the time of day. When the person found out who her father was, she couldn't get rid of him. When a girl from a particularly well-known family was 11 years old at summer camp, she was asked by another camper for her autograph. She also said, "Once I was in a medical clinic waiting room and, after I gave my name to the nurse, one of the other patients seriously asked me if she could touch me."

While having an identifiable name is another giant step beyond just being rich, I went through a long stage when only my very best friends knew I had inherited money. I didn't buy a record player or anything that would imply wealth, avoided talking about and even lied about vacations I had taken, became overbearingly bargain-conscious, and always dressed in the most neutral clothes possible. Several people I know have moved from the East coast to the West coast, or visa versa, to avoid surroundings where other people knew of their family backgrounds. One woman changed her name (fears of a Patty Hearst style kidnapping played a part here, as well). Another worked full time as a maid for $70 a week.

And there was also the pervasive fear that people were going to ask for money. I was afraid that, if people knew I was rich, they would think: "Now I need $200 to pay the rent or I'm going to get thrown out, and that is an incredible amount of money for me. That person over there is rich, could write out a check for $200 without blinking, and would never miss it." Of course, they would be right as far as the money was concerned. The $200 would make very little difference.

But the sacrifice would not be monetary. Since money is purely numerical, it's easy to get tricked into thinking that there is nothing more to it than the numbers on the bills and how many bills there are. Lending and receiving money creates a bond, like giving someone a job, and there is a certain sense in which the lender is the boss. While this can be acceptable and workable, a relationship with "boss" overtones can have some very uncomfortable unequal vibrations which make a positive, open relationship much more difficult. On the rare occasions when I have lent money, the most uncomfortable part has often been our trying too hard to ignore these vibrations, which is just as deadening.

A further fear was that, ignoring the personal difficulties, people would feel that I ought to lend them money even though they weren't as close friends as lending protocol usually requires. This could lead to a ridiculous deluge of requests. But, in any case, whether or not people were actually going to ask for money, I was terrified of the idea that I would have to suspect people's motives if they were especially friendly. Is this person really interested in me or is she just after my money? What would it be like to have to ask this question every time I met someone who might know I had money? At the time it seemed much easier to hide the fact that I was rich.

Another problem for wealthy people is whether or not to work for pay. A lot of people think (and have said) that, no matter where you work, you are ripping other people off if you have a steady income but take a salary anyway. You don't need the money, so why not work for free? This gets into the same kind of confidence problems: "would they still want me to work here if they had to pay me the same as everyone else?" When I applied for jobs that had several applicants, I felt guilty that, if I won, I would be denying someone a livelihood. The "pay on the basis of need" idea can ignore that a salary means more than just cash.

Being rich is like being an extraordinarily beautiful woman. It is something that almost everyone notices, and most are attracted to. Other women wish they were like you; men wish they had you. The people you don't want to come on to you do, and ones you do want to come on to you don't. You get thrown into more situations than most people and have to expend that much more energy dealing with them all. You are in danger of getting sidetracked by people or situations that aren't right for you. People tend to notice that one striking part of you, ignoring your real skills and the things that are important to you. People somehow expect more from you and are quicker to judge. They compare themselves to you and get competitive, no matter how you relate to them. You fit exactly into a social stereotype that is supposed to be eminently desirable and remind people of all their own past feelings about their inability to achieve that stereotype. People assume that you must be happy and satisfied and that things come easily to you.

But, most of all, you are in danger of liking yourself for that quality which, in reality, is without substance and satisfies only a fragment of your needs. Placing much stock in this particular "quality" can lead to wasting an immense amount of time and missing many good opportunities that you may or may not ever know you missed.

Some of the most beautiful women are also the most unhappy and have the least idea how to improve their lives. Their most noticeable and obvious quality, their looks, is

the very thing that holds them back. While confused and lonely, they can go along relying on their beauty, decieved into thinking they're on top. Possessing wealth, like beauty, has no meritorious or substantial qualities, though pitfalls lurk at every turn. The ability to purchase objects and live without working can leave you at 40 in a big, boring house with nothing to do. You're not born with a spoon in your mouth that helps you cope with reality.

No matter how hard I tried to ignore it, I was plagued by having this extra money around and not using it for the causes I believed in. It seemed to me that if people have a social responsibility to contribute to the common good, and if they have some moral responsibility to utilize their potential, then they had to give money away if they had it to give. To ignore the money seemed to be as much of a positive decision as giving it away; I felt just as responsible for what I didn't do as for what I did do.

In other words, if you walk by a pond, find someone drowning, throw him a rope, and pull him out, you have saved his life and are responsible for saving his life. If you walk by, find a person drowning, see the rope, notice the patterns of the ripples from his thrashing, put your hand to your chin, and keep walking, you have let the person drown and are as responsible for his death as if you shot him in the head.

When we are facing a multitude of potentially disastrous situations—— flurocarbons in the atmosphere, worldwide famine, international terrorism and blackmail, the disintegration of the international money system, the deterioration of the environment—— we cannot just sit and watch. Many people are acting as if we were still in the mid 1920's. Our society slavers after the more-and-more-and-more consciousness with such abandon that few even consider how it all ties together. Imagine a man at the seat of his car, his foot jamming the accelerator to the floor, staring mesmerized into the ascending speedometer with an occasional satisfied glance into the rearview mirror.

Money is an important factor in the evolution of most groups doing constructive work in our society, and there are billions being spent by the other side: by corporations interested in profit at the expense of safety and the environment, by governments preoccupied with world domination at the expense of social programs, by bureaucracies more concerned with their own perpetuation than with the public welfare, by wealthy people more concerned with making greater profits than with anything else.

There are so few people seriously concerned with social and environmental problems that those of us who are and have the financial resources to help, can't afford to sit and watch someone like the Atomic Energy Commission tell us, "We'll figure out what to do with that extra plutonium sometime; the point is that we need more energy now to sustain our vast economy." The United States might not need so much energy after it starts moving toward a no-growth economy and starts using less than 33% of the world's resources for our 5% of the world's population. There are endless projects focusing on the rights of individuals, equality between people, the power of people to be involved in decisions that directly affect them, the preservation of our natural environment, etc. etc. All of them need money desperately.

Imagine a man at the seat of his car, his foot jamming the accelerator to the floor, staring mesmerized into the ascending speedometer with an occasional satisfied glance into the rearview mirror.

But I don't want to give the "if you're not with us, you're against us" impression. It is difficult to give money away well, and there will inevitably be a long learning process. A little money can go a very long way when it is applied carefully and at the right time. Of course, it can also be wasted or actually destructive if it is applied at the wrong place or at the wrong time. There are incredibly complex factors that have to be considered and balanced against each other.

Do you fund a free breakfast program for ghetto children or a group trying to force the city government to pay for it? Do you fund a film on prison reform which can be used as an educational tool, or a lawsuit to outlaw isolation cells? Do you fund the National Free Clinic Council, where your contribution will be a small percentage of their total budget, or a local clinic, where your contribution is half of what they need? Do you fund an experimental group doing research into solar energy or an organization fighting increases in utility bills? Or Ralph Nader, or the Environmental Defense Fund, or a tenants union, or the United Farm Workers, or a women's employment group, or do you cash it all in for several truckloads of spare change and head for 42nd Street?

Money is raw energy, like a flame. In order to be used effectively, it has to be carefully directed. It should certainly not be used carelessly or haphazardly, though it invites such use. The discovery of fire led to the immediate discovery of a whole set of rules that had to be respected, or you burnt down your grass hut.

While many problems stem directly from the mechanical considerations intrinsic to using money as a tool, there are strong, personal side effects which are not necessarily obvious. Intuition is not always sufficient to deal with the sticky situations created by these emotional factors.

As alluded to before, my first reaction was to fund people who are friends. Not only would this ignore the question of what is the most effective, but the "boss" overtones would be very difficult to fight. For instance, if I funded someone for a year or two, how would I decide to stop and move to something else, especially if the person would not be able to find money elsewhere to do the same thing? Who wants to be put in the position of evaluating the performance of friends? Several people I've met refuse to give money to friends under any circumstances, citing histories of good friendships which were unpredictably broken due to money hassles.

Whether with friends or not, just talking to someone about giving them money carries a commitment, and this relationship has to be dealt with sensitively on both sides to be good. The giver has to be careful not to let his objective evaluation be clouded too much by factors like his own guilt, pressures from other people, or the extent of need of the people asking (a fantastic number of people have great need—— do you feed one hungry person or buy seeds for two?). The person asking has to be careful to stay honest and not let distaste for the "supplicant" role get too personal.

Evaluating applicants is an acquired skill, and I became incredibly drained while floundering around in the beginning. A good number of the people I turned down got angry and hostile and made sure I understood how they felt. Many donors try to separate themselves emotionally from people they are funding until they feel comfortable with their role (if ever).

Some people have hired a director who assumes the responsibility of dealing with applicants and interviews. They remain on the decision-making board, along with the director, to make final decisions on specific groups, basing their views largely on the director's report. One person considers it to be a great relief that she doesn't have to talk directly with applicants, which she had done for a long time, as that was getting very uncomfortable. Another keeps personally in touch with some of the groups funded, while letting the director do most of the busy work. This enables him to keep a distance as well as benefit from direct contact, which helps him to learn how to evaluate applicants and assess their effect.

Other people have set up foundations with a director and decision-making board made up of people they trust. They then have no more to do with it except for checking in once or twice a year to see how things are going. This kind of foundation can either be set up to fund within certain guidelines or can be left to the discretion of the board. The Third World Control Fund of San Francisco, where all decisions are made by third world people, is an example of the latter, giving away about $180,000 a year.

A foundation should never spend more than 10% on the process of giving money, and much less, or nothing, is desirable. So it's hard to hire someone and set up an office unless there is more than $100,000 a year to give away. If someone has less than that to give but still wants to have some structure for applicants to contact, he can join or start a collective donor group.

One such group is the Vanguard Foundation, of which I am a member, where 15 people pool a portion of their annual incomes each year to give away. We do all of the administrative work ourselves (two full time people without pay), interview applicants personally (anywhere from 2 to 10 foundation members show up), and make decisions by consensus at meetings every three weeks. We fund small, social change projects in the San Francisco Bay Area which don't have access to other funding. While all of our grantees must be non-profit, our main priorities are prison reform, women's rights, third world groups, alternative media, consumer groups, and economic alternatives. We've been going now for three years and give away about $90,000 a year. Grants are usually in the $1,000 to $2,000 range.

Another kind of donor group is the Haymarket Foundation in Boston. Haymarket was originally modeled after Vanguard but is evolving to be more of an alternative community chest. Decisions are made not by a collective donor process, but by a board of community activists and by the donors as individuals. While much of their initial funding comes from young people, they are developing a broad base of support from people of all economic strata. There is a service within the Foundation for people who want administrative help and advice about giving money. Haymarket has similar funding priorities to Vanguard, though they concentrate on community organization as a means to redistribute power to low income and other minority groups. While Haymarket emphasizes the Boston area, it does fund in other New England areas when activist groups have no other access to funds.

There is another group of 16 people from different parts of the country who, without any direct transfer of funds, meet once every three or four months to exchange ideas and discuss specific problems related to our backgrounds, our inheriting wealth, and our giving money. Minutes of one of our meetings are printed along with this article. Several people started this group because they felt a need to talk with others but did not have a Haymarket or a Vanguard to turn to. In spite of the fact that none of us had known each other before, we decided to get together once to see what would happen, were surprised to find we had a great deal to share, and felt the meeting was incredibly rewarding. We are now trying to figure out how to expand this group so that it can include more people without limiting the good group interaction we've been able to develop because of our relatively small numbers.

So much for different ways to deal with giving money. Let me just mention one good question that people ask all the time: "if you're so concerned with the inequities of the system, why not give away <u>all</u> your money?" First, many people I've met have been given irrevocable trusts which cannot be broken under any circumstances; all the beneficiary gets is income. Second, if a person is giving away a lot of money at once, it is even more important to make sure that it's given in the most effective way. So even greater expertise is required than with giving smaller amounts on a regular basis.

If you know what you are doing and if you are certain that a specific group will make the most effective use of the money, then it makes sense to give away significant chunks. But, otherwise, careful learning about how to use money well is the best way to know when that right group comes along. The "give it all away" solution can be more of a cop-out on your responsibility than a noble gesture. A more sensible aim is to give it all away during your lifetime.

* * * * *

Finally, Vanguard only funds in the San Francisco Bay Area; Haymarket funds primarily around Boston. The national rap group doesn't give money, and one of the fundamental assumptions that enables people to feel comfortable about coming to meetings is that they can remain completely anonymous. We are doing the best we can and are very busy. We'll try to answer letters coming to us, but, if there isn't the slightest chance we're going to be able to help, we just won't be able to respond with more than a "sorry" form letter.

And, if you want to contact us, please write. We have a hard enough time trying to deal with the volume (Vanguard turns down 9 out of 10) without people dropping by all the time to talk.

Here are our addresses:

Vanguard Foundation
3665 Sacramento Street
San Francisco, CA 94118

Haymarket Foundation
2 Holyoke Street
Cambridge, MA 02138

Answer from p. 96: all of them.
None of them has to work. They all do.

The season was late. The hunt hard. But the horns I yearned for had to be BIG!

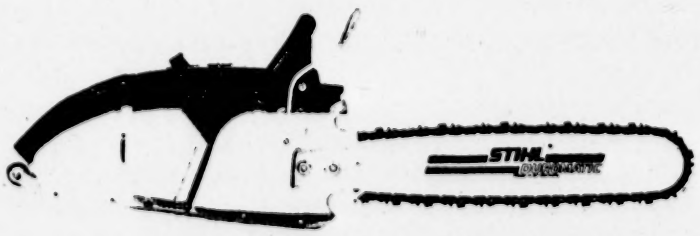
BY J.D. SMITH
(left)

an example of coevolution:

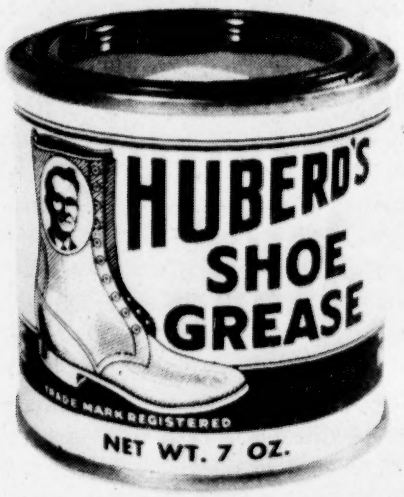
me, alone in the woods for two years, coming to california, working for a ticket to the hookers' ball, so i could meet the head hooker.
the head hooker, living fullblown city, talking about originally being a farm girl.
me and the head hooker's mother kissing goodnight in the rain in sausalito california.

hints:

the stihl 045 with a 28 inch bar and oregon chiselbit chain is the chainsaw the loggers are toting. light, easy starting, neither over nor under-powered. mind that you don't drop a tree on one though, cause the moulded plastic doesn't dent, it shatters.



huberd's shoe grease, mcminnville oregon, cheaper than mink oil, works just as good. doesn't gum up in the summer like snow seal. money back guarantee right on the can. i bought a can that didn't seem quite full, wrote to them and they sent me two full cans within a week.



the 36 inch sandvik bow saw and a couple of extra blades sure would be handy to have around when we have to buck up the telephone poles to fry up a lizard or two.

you never learn younger: told to me by a chicken farmer.
i always wanted a color television set and my first love in life has always been the kentucky derby, so about ten years ago, me and the wife saved up five hundred dollars and bought us a good, big color television set, and got it all set up for the kentucky derby. the little lady even set me up with one of those folding television trays and cooked up a good big frozen television supper. we got the set all tuned in, the horses were getting ready to go in the gate, and i leaned back in the old easy chair and lit me up a cigarette. just as the bell went off and the horses came out of the gate, i started coughing and hacking and snotting and wheezing, my eyes were running and my ears were stuffed. i was that way for the whole damn shitteree, missed the whole kentucky derby and i haven't smoked a cigarette since that day. you never learn younger.

for the past two years i have been living the mountain fantasy up high in idaho, snowed in six to eight months at a time, with the closest road thirty miles away. i have learned a few things about living alone, and lost track of some parts of my memory. here are some thoughts.

there isn't enough wildlife left alive to supply bambiburgers to all of us should the american food distribution network collapse. there aren't as many deer and antelope playing as there were twenty years ago, partly because more people hunt now, partly because more people hit them with more new cars, but mostly because the wildlife range is being rapidly converted into irrigated potato fields, lumber camps, and sheep pasture. if there are more of us getting out there on the land, then there is less land for non-human use.

i have become enough of a native of idaho to blame most of idaho's problems on the californicators. not

many people who have ever lived in a wood fired log cabin would come up with the notion of an econdominium, yet someone is building them on almost every picture postcard lake in my state. the first day of hunting season brings out the chauvinism in me. i sit and watch these folks from california coming up for the hunt in their winnebagos, towing jeeps and drinking whiskey, expecting us natives to be super hospitable and a little bit simple-servant because they got their shit together enough to pay a hundred and fifty bucks for a hunting license to the idaho fish and game department, which is just the enforcement arm of the idaho tourist bureau. trophy bucks indeed. if there were any elected officials in the fish and game department, i would vote for someone who advocated cutting off all out of state hunting and fishing licenses for an indefinite period, just to see what would happen, for no reason other than tinkering with a system that isn't running smooth.

back to the wildlife. people hunt for sport mainly. pay your money and buy something to kill. i called the fish cops in california and idaho, and asked their public relations men if there was any way i could buy a hunting license and capture my deer alive, for use as a kid's pet or a milk deer. no way, i was told. no permits are issued for the capture and propigation of native deer. no reason. if you are hunting you are presumed to be a meat eater. what if i want to fatten my deer before i butcher it? no way. what if i want to harness my elk and plow my meadows? no way. wildlife management, it turns out, means a state supported system of research funding that aims at being sure that your deer is kept alive for you long enough so you can peck it behind the ear with an aught-six and dip you hands into warm guts once a year, like our forefathers did.

so, if people hunt for sport, we should be able to bring down the price of meat by letting individuals go out on the range and kill their own cattle. a herd of herefords that gets shot into two or three times a day will get just as rangy and wild as an elk herd after awhile. with the market price of beef right now, a hunter would save money this way too, if you figure that the average american big game hunter probably puts a couple of hundred bucks a year into his sport. the kill would be almost guaranteed. the wounded ones would die inside the fence. people who didn't like guns could use sledgehammers. wildlife management wouldn't be such a problem in this system, because the rancher/wholesaler would still be breeding feeding and branding just like in the present marketing system. for the folks into the real psychodrama of big game hunting, there could be custom branded calves who grew up into just the animal we were supposed to kill. we could paint them pink, or black, give them gooky eyes or german names. in all, the surrogate hunting season might lessen world tensions and help keep the wildlife from committing suicide.

a bear story spun by a fellow from riggins idaho.

i was about four miles from the house one day, on a horse, cutting out a few steers when i came up over a hill and saw that there was a bear walking in among some cows and calves in a fenced pasture. i snaked out my rope, and just gentle-like laid a noose around the old bear's neck, but in the process i got my end of the rope down underneath my right stirrup, so that when i dallied and the bear come to the end of the rope, it tore the heel off my boot and jerked me from the saddle. i set out running and looked back and the bear was up in that saddle, and the horse was spooked enough to be following right along behind me as i ran in big old circles because of my bootheel. well, finally, as chance would have it, i ran right by my own front door, my wife knocked the bear out of the saddle, and that was that.

Down in the Dumps

when i was a kid in alliance nebraska there was a fellow we called nicko the greeko whose occupation was scavenging the city dump and redistributing to folks who didn't throw it away. he served a good reminder to many housewives to be more frugal with their unwanted junk, because the cleaner families (those most apt to be throwing away useful goodies) never cared much for nicko and his trashy ways. he provided a service and a communications network that no municipal government can approximate, and, as any janitor knows, he could tell more about the life of the town from its garbage than the ministers could from its prayers.

most small towns are like that. if you have the balls to pick through the snotty kleenexes and ripe halibut in order to come up with a good canning jar, then all you have to do is drive out to the dump and have at it. my wardrobe is mostly gleaned from the dump in mccall idaho, which used to be a grand hippy shop-

ping center until this june when state bill such and such went into effect, whereby all municipalities must burn or bury their garbage every twenty-four hours. that means you can only shop until about noon, then the d-7 operator starts pushing it into piles for burning. a burning dump is a sad sight.

take an old sweater and put your arms up the sleeves backward, so that the cuffs come a little ways above your wrists. see the potential mittens?

big cities don't even have sense enough to let the people carry off the problem. most california communities, have ordinances against scavenging, which makes sense from the standpoint that my carrying off a working refrigerator or half-tread snowtire is robbing from some future homeowner's front yard. from a human energy conservation standpoint, keeping me from hauling stuff away from the dump is just another example of the dangers of being too tidy. the chambers of commerce should come right out and say that they are against recycling in any form. if you ain't buying it new, you ain't supporting america, buddy.

the model city dumps system should include organic-inorganic separation in the home barrels, with the organic waste being composted or fed, and the inorganic deposited somewhere that was open to the people to use as they wished. new industries would arise, second hand stores would proliferate. community consciousness would develop. we'd all be meeting new neighbors down in the dumps.

country music

farm women tend to know quite a bit about country music as it is played on kitchen radios. the station in alliance nebraska is kcow, the cattle capital of nebraska. in mccall idaho it is kmcl.

a proposal for human use of the land in the united states.

new ten acre homestead act. non-transferable title except to blood relation. (ah, population) obtained by residence ten months per year for five years, during which time the person shooting for the title is not eligible for government help except pensions and free medical aid. let the young folks out of the cities and give the old folks a place to go out to pasture. nobody owns the timber rights. open all bureau of land management and forest service lands.

the mean old lowdown too long snowbound blues

maybe it was california that blew my mind
maybe it was you
perhaps it was caps of lsd
a little bit of tv too.
i'm sitting in the snow in idaho
waiting for the sun to shine through.
i got those mean old lowdown
too long snowbound blues

if i could order just one more time
from monkey wards or sears
i'd get me the lady on two eighty three
wearing the red brassiere.
she'd have those deep green eyes, long brown hair,
wearing those plastic shoes.
i got those mean old lowdown
too long snowbound blues.

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There is little or nothing to be remembered written on the subject of getting an honest living. Neither the New Testament nor Poor Richard speaks to our condition. One would think, from looking at literature, that this question had never disturbed a solitary individual's musings.

–Thoreau

Nomadics

Bike Convertible

It appears that the bicycle is energetically the most efficient means of transport on earth, vis. Moulton's Chart, but is often climatically unsuitable.

Gilles Bouchez and Dominic Michaelis built this collapsible 'Cyclodome' which they tried out successfully in Paris. Apart from keeping rain and wind off, it seemed to add to aerodynamic efficiency, and was surprisingly stable under side-wind conditions.

The prototype was made of elastically deformed hoops, pivoting around an axis situated below the saddle. It folds into a single hoop around the handlebar, and in no way restricts the balance or manoeuvreability of the cyclist. The material cost was approximately 30F (£3.00).

(From June, 74, **AD** *Magazine)*

Engine rebuilding and the Chevy 4

Dear WEE:

Cal-Race Parts, Box 1251, Wilmington, California 90744 is the lowest priced seller of all parts necessary to rebuild an engine I have come across. Despite their name they sell their own line of parts that are equivalent to the original item. In March of 73, from a full cost auto parts store, with a 20% discount from list I bought all parts necessary to COMPLETELY rebuild an engine for $300. When I discovered Cal-Race I spent $100 for the same parts for an identical engine. For $3.00 they sell their catalog which gives extensive instructions on engine rebuilding. Best buy, however, is their rebuilt engines, less than the cost of parts plus local machining costs, plus their work is guaranteed, yours is on you.

In this day of gas economy, everybody overlooks the Chevy Nova 4 cylinder car. Any Chevy 8 made since 58 will bolt into any Chevy made since 55 except Vega. Any recent Chevy six or four (cast iron, not the Vega four) will fit in any Chevy. Junkyards used to throw away Chevy fours, now they are easier to find. I don't think much of Volkswagens, especially the later ones. My Chevy II (later models called Nova) was the best car I ever had. With a small six it got 25 mpg. Always ran and it never cost much to maintain. I find various Chevys to be cheap to maintain because so many parts are available in the want ads and on sale at auto parts stores. Their mechanical parts are the most common. The reason for high engine interchangeability is the relative lack of change in mechanical components. All use same engine to transmission bolt patterns.

I have been a GM hater since I worked for them. However, on a practical basis, you can't beat small Chevies. They are the car for the do it yourselfer.

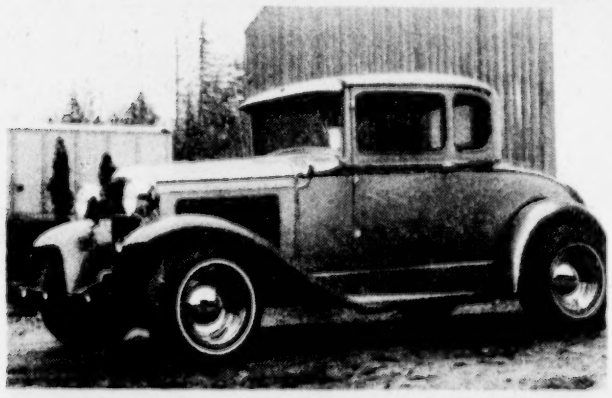
James G. Peck
Marion, Ohio

Practical Fiberglass Model A

Wescott's Auto Restyling
19701 S.E. Highway 212
Boring, Oregon 97009

sells a Fiberglass Model A body and frame to which you add the engine, suspension and drivetrain from a wrecked pinto. If you can follow the directions you can have what looks like a Model A Ford, has excellent gas mileage due to its low weight and is completely non-obsolescent and probably will not depreciate in value if mechanically maintained, all for $2500. The number of Model A's is actually increasing because so many fiberglass bodied ones are being put on the road. The volume of Pinto parts produced is so enormous they will be available for the next 20 years at least. Mechanical components are economically rebuildable for quite a period. In Detroit junk a model year determines value so it usually is not normal to mechanically maintain cars. Plus, modern designs are inaccessible and so forth. If your fiberglass A is damaged, merely unbolt the offending fender and put on a new one, at much less cost. . . .

J. Garwood
Marion, Ohio



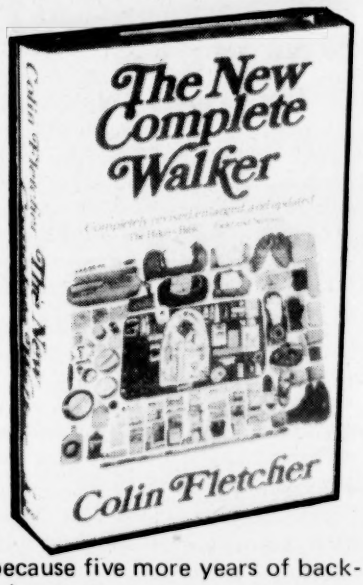
Car shown is all fiberglass except hood and running boards-- uses 71-72 Pinto running gear-- weighs about 2100 lbs and gets around 30 miles per gallon.

The New Complete Walker

I believe this is the way all such classic books should be handled. . . . every few years a complete reworking. Colin Fletcher's first edition came out in 1968. Now six years later we have a book "fifty percent longer and containing 32 new illustrations . . . completely up-to-the-minute in its prices, practices, and prejudices."

This book obsolesces the house, the automobile, the trail bike, the snowmobile, and most of the Twentieth Century.

—SB



The New Complete Walker
Colin Fletcher
1974; 485pp.
$8.95 postpaid
from:
Alfred A. Knopf, Inc.
457 Hahn Rd.
Westminister, MD 21157
or Whole Earth

The revised edition appears because five more years of backpacking revolution have rolled over us.

Equipment has improved—— often radically, sometimes to the point of overengineering. Its manufacturers and distributors have multiplied, specialized, diversified, conglomerated, grown fat. In the kitchen, freeze-dried foods have come into their own and the "organic" movement has unfurled its puritan standards; indeed, the whole lightweight food scene is today a cornucopia that even spills out into the supermarkets. At the receiving end, our numbers have exploded. So has our literature. And we now suffer those slightly unfortunate battle cries, "Ecology!" and "The new ethic!"

"Yes," you say. "But is this really a revised edition, facing such changes? Or has the wretched man just cosmeticized?"

I have revised.

In places I have rebuilt: see, for example, almost the entire "Walls" chapter and the food and stove cupboards of "Kitchen." Where necessary, I have reassessed—— as in "The current state of the mart." And I have injected innumerable minor and several major passages, embracing such items as hypothermia, an emergency solar still, the new literature and "Getting in shape" (for the omission of which I had rightly been taken to task).

Then there is feedback from the first edition. That edition brought me not only a splurge of unexpected affluence and offers from manufacturers to try out their wares but also readers' letters that ranged from joyous through serious, solemn and delightfully nutty to nutty. Most manufacturers were extremely helpful. But one of them, in response to a mildly critical report on his equipment, taught me a cautionary lesson in human nature by whipping back a gem of a reply that after four pages of mounting calumny rose to this peroration: "Your distortions, misuse, and lies are totally wasted, except to reveal to me the character of you, which I must say comes out quite disgusting." Readers proved gentler and more usefully informative, and I have fed back into this edition a number of their suggestions.

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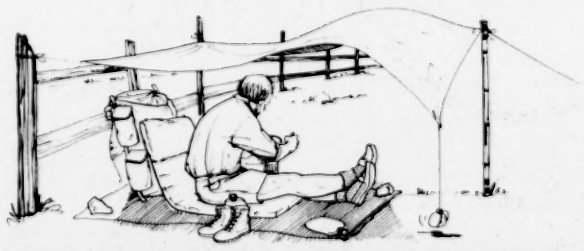
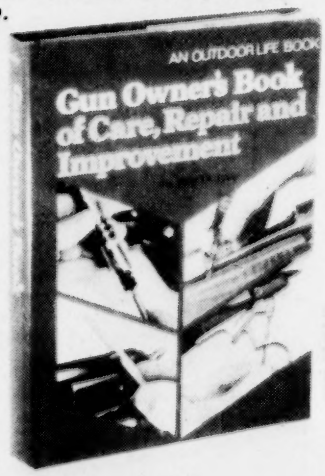
On desert afternoons a strong wind often blows for hour after hour. When it does, the continuous flapping of the poncho makes a hideous din, always threatens to tear grommets loose, and sometimes does. One way of reducing both noise and strain is to secure only three corners of the poncho to fixed points and to tie a large rock on the downwind corner with a cord of such length that the stone will just rest on the ground under normal conditions but will lift, and so ease the strain, when the poncho billows under an especially strong gust.



Gun Owner's Book

A famous gunsmith tells you how to work on your own weapons. The entire book is presented in that detailed, exact way that only a man who <u>really</u> knows can accomplish. The photos and drawings are unusually clear, as is the text. There is particular emphasis on "accurizing" and upgrading your weapon to a level far above the factory standards. I found this book to be detailed to the point where I'd feel at ease actually attempting the work. (Most books are an exposition of the skill of the author and you don't dare really do it yourself). Just reading through the book will enormously expand your knowledge of guns even if you aren't going to do any work. He covers gunsmith's tools exceptionally well, and there's a passel of useful tables, lists of sources, and a glossary at the back. Exceptionally good job.

—J. Baldwin



Gun Owner's Book of Care, Repair and Improvement
Roy Dunlap
1974; 336pp.
$9.95 postpaid
from:
Harper & Row
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth

In barrel cleaning, don't let solvents run down into the actions to cut away the oil or grease lubricating the sear or trigger functioning. And, if rifles are stored or racked upright, it is best to have single shots, lever rifles and autoloaders stand muzzle down. This prevents action and/or barrel oils from running down into the stock, deteriorating the wood and weakening attachment to the receiver or frame.

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Should you wish to teach a small son to shoot, you have problems. Not since the days of custom muzzle-loaders have boys' rifles really been made for boys. Any single-shot bolt-action rifle you can get will have too much stock and too much trigger pull, although the barrel length and weight may be OK. It's best to take the stock off and make a stock yourself, kid-size. It doesn't have to be hard walnut: it can be soft pine, easy to shape with a knife, chisel and file. If you can't find 1¼-inch or 1½-inch soft clear wood at a pattern shop, go to a lumberyard for ¾-inch shelving and glue two pieces together. Make the pistol grip close to the trigger and small in diameter so the child's hand can really fit it.

Beginner's Guide to Archaeology

Now the best introductory practical book of archaeology. It's odd to see how similar archaeologists are to editors, hunting through dirt and debris, gathering the occasional tool, and how similar in that respect both of us are to the dear, gone people the archaeologists study.

—SB

Beginner's Guide to Archaeology
(The modern digger's step-by-step introduction to the expert ways of unearthing the past)
Louis A. Brennan
1974; 379pp.
$2.25 postpaid
from:
Dell Publishing Co., Inc.
1 Dag Hammarskjold Plaza
245 East 47th Street
New York, NY 10017
or Whole Earth

Why dig? There is no better answer than the following quotation from **The Testimony of the Spade** by Geoffrey Bibby, a field archaeologist (**Searching for Dilmun**, Alfred A. Knopf, is an account of his work in the Middle East) and a writer of charm and force. He says: "Every archaeologist knows in his heart why he digs. He digs . . . that the dead may live again, that what is past may not be forever lost, that something may be salvaged from the wrack of ages, that the past may color the present and give heart to the future."

Whoever digs in this spirit will never regret a minute spent on it; it pays as you go.

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HELPFUL PERIODICALS

American Antiquity, the quarterly journal of the Society for American Archaeology; contact **American Antiquity**, 1703 New Hampshire Ave., N.W., Washington, D.C. 20009. Policy emphasis on archaeology as anthropology.

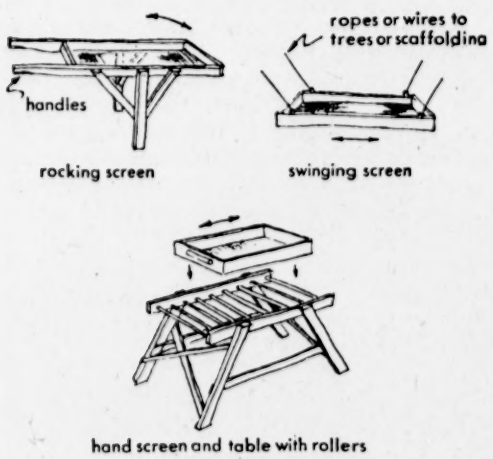
Science, American Association for the Advancement of Science, weekly, 50 weeks per year; 1515 Massachusetts Ave., N.W., Washington, D.C. 20005. Occasional but important and timely pieces on archaeology.

Scientific American, monthly; Scientific American Inc., 415 Madison Ave., New York, N.Y. 10017. Occasional important and current articles, written for the general reader, on archaeology.

Archaeology, quarterly; Archaeological Institute of America, 100 Washington Square East, New York, N.Y. 10003.

American Journal of Archaeology, quarterly; Archaeological Institute of America, Princeton University, Princeton, N.J. 08540.

Bulletin, Eastern States Archaeological Association, annual; Office of State Archaeologist, Hall of Records, Dover, Del. Abstracts of papers delivered at the ESAF annual meeting.



TYPES OF SCREENS

Around the World in Eighty Rules

A beginner's checklist of things to consider before starting the Big Trip. You can certainly get more information from more specialized books, but this phamphlet is a good start.

—J. Baldwin

Around the World in Eighty Rules
Jack Womeldorf
1974; 28pp.
$1.00 postpaid
from:
Welfare and Recreation Association Travel Club
of the Library of Congress
Washington, D.C. 20540

4. Go over your plans carefully with travel-experienced friends and your travel agent. Travel agents don't charge extra for their services, but get their commission from your airline, hotels, etc. We cut our world trip ticket cost by more than half by having our itinerary rerouted to eliminate unnecessary mileage. You don't save money by getting a ticket directly from the airline.

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11. Join SERVAS, an international cooperative system of hosts and travellers. Spend a few days in the homes of members in over forty countries. Write U. S. SERVAS Committee, P.O. Box 790, Old Chelsea Station P.O., New York, N.Y. 10011. You don't have to be a host in order to be a traveller, though it's more fun.

Whole World Handbook

Where to find out about student discounts, work-study programs, "meeting-the-people" arrangements, independent study, work regulations, and just about anything else you might want to know. There are vast listings of opportunities that you may not have realized existed. All sorts of advice too, though not in as much detail as you'll find in a specialized area guidebook. Approximate fees are shown with suggestions for getting the most for your money. They update this book each year, so information is about as reliable as you're likely to find before you get there. This book is a real buy at the price.

—J. Baldwin

Whole World Handbook
(A Student Guide to Work, Study and Travel Abroad)
Marjorie Adoff Cohen
Margaret E. Sherman, ed.
1974-75 edition; 359pp.
$3.50 postpaid
from:
Simon and Schuster
One W. 39th St.
New York, NY 10018
or Whole Earth

Valldal Youth Hostel
6210 Valldal
If you are going to be in Norway during July and August you can go to see the warden of the Valldal hostel and he will try to arrange work for you on a fruit farm in the area. Fruit-picking depends on the weather, and if there's no farm work the warden will try to find you something else. You'll stay at the youth hostel (a youth hostel pass is required) and pay for your own room and board. Fruit pickers will be paid according to how much they pick. The warden can't promise work before July 25.

Hitchhikers for America

HFA is a hitchhiker certification service. It costs $5 to join up. (Sent by George Beekman.)

To join, our members send us their name, address and social security number which is kept in a confidential file. We then send to our member an I.D. card and ecology symbol armband having a number which is assigned to their name. Should one of our members infringe upon a motorist's rights, said motorist turns in the I.D. number (NOT YOUR NAME) to the authorities. If there is a charge against the member's number, only then will we open our records for information.

The publicity for H.F.A. is being done by thousands of members already across America. When you become a member EDUCATE your motorist to our club so new members can get rides without hesitation.

Motorists have come to recognize our club as having all of our members registered for everyone's safety, which increases your rides.

Hitchhikers for America
Box 536
Hollywood, CA 90028

La Mecha

Before cheap matches became common men would carry a small piece of steel and a piece of quartz to strike a spark with and a bit of tinder to catch it in. The tinder was sometimes a brown fungus called yesca that grows on dead oak trees, but more often a wick-like mecha was made up out of cotton. This cotton was of the variety algodon de arbol (tree cotton) because it grows in small pods on a tree-like plant that may grow 12 feet high and live for 20 years. Color of tree cotton can be either brown or white.

The making of a mecha begins with wrapping the cotton around a taut bow string, for vibrations caused by plucking the string clean the cotton of bits of leaf by shaking them loose. This is an ancient method of carding both cotton and other fibers such as wool.

With the fingers, the carded cotton is pulled out into a thin even sheet, which is then rolled up into a pencil-like form and held together by winding a cotton string around it.

To finish the mecha, one end of it is charred and then stuck in an empty large caliber pistol shell. When a light is needed a spark is struck into the charred end of the mecha and blown on to form an ember from which a cigarette can be lit. With a practiced hand this takes but a few seconds. The ember is extinguished by a lack of oxygen when it is stuck back in the empty cartridge.

—From a completed manuscript by Eugene Boudreau on the ways and crafts of the people of the Sierra Madre in Mexico, which is looking for a publisher.

Tying a mecha

Latin America for the Hitchhiker

After reading the travel section in the Whole Earth Epilog (September 1974) I was surprised not to find any selections dealing with South and Central America. Surprised because a lot of people talk of the big trek to Latin America and this summer we went and met a number of other travellers (most were hungry for information).

Anyway before departure we searched for a month or two trying to get some solid information on what we might need and what we could expect—— as much as I want to take off unencumbered for an unplanned holiday, the travel guides are necessary—— but all that our local bookstores offered was the old standby, Frommer, which directs itself to a different kind of trip than what we were interested in.

We did find reference to a publication, **Latin America for the Hitchhiker**,—— tracked it down and we were on our way. The book, subtitled "A Guide to Low Cost Travel in Mexico, Central America and South America", is authored by Mik Schultz and distributed by the Information Exchange (address below).

The book proved itself to be invaluable, beginning with how to get there from North America and Europe, visa regulations, vaccinations (including symptoms of diseases one can expect if you fail to get the innoculations), currency exchange, effects of inflation on money exchange, hostels, student concessions, tourist offices, bus and rail passes as well as places to stay ("in Guayaquil you can stay at the Hotel Medellin, cheap but not very pleasant neighborhood"), side trips, and the cheapest ways to get from point A to point B ("you can hitchhike in Panama but it is slow").

He includes timetables wherever possible—— although his timetables are well intended, we sometimes found them inaccurate due to the nature of the Latin American head, "Well yes, the bus is supposed to leave at six but the bridge is out, or the driver's wife got sick, or today is fiesta", once you get used to the slower pace of life, you'll flow right into the scene.

In general the information is accurate and useful.

The book is part of a series including:

Asia for the Hitchhiker
Africa for the Hitchhiker
West Africa for the Hitchhiker

All are available in the United States from:
Information Exchange
22 West Monroe St.
Chicago, Illinois 60603

Jay K. Miller
Englishtown, New Jersey

Ferrocarril Central de Peru. This railway connects Lima with Cerro de Pasco and Huancayo in the Andes mountains. The roadbed reaches an altitude of 4983 meters (15,681 feet) only 159 km. from Lima. It is the highest passenger railroad in the world. The trip across the Andes is an interesting experience, and the mountain scenery is beautiful. The valley most of the way is on the left side. When you pick a seat in the train in Lima, sit on the right side of the train with your back facing the travelling direction. About 1/2 hour from Lima the train changes its travelling direction, and you will find yourself facing the travelling direction and with the valley on your left hand.

The train carries buffet class, 1st class, and 2nd class. 2nd class is good, with soft seats, and not too crowded. However, be at the train station in Lima or Huancayo about 1/2 hour before departure to get a good seat. The train is reliable.

The whole object of travel is not to set foot on foreign land; it is at last to set foot on one's own country as foreign land.

—Chesterton

TO SOUTH AMERICA

BY LYNN MEISCH

Here's a letter to the Whole Earth Epilog that began as a rave review of **The People's Guide to Mexico** *(EPILOG p. 636) and clearly got out of hand. If I were a publisher I'd get in touch with Lynn Meisch fast. Culturally, politically, biologically, for the hammock life or the dangerous life, South America is a hot item.*

–SB

It's a shame there isn't a **People's Guide to South America.** There are, however, some books and some information which no one should venture down here without.

There is only one guide book I'd recommend. Forget all the others–– their only real value on a long trip is as toilet paper. Before you even plan your trip buy **The South American Handbook 1974.** 50th Annual Edition. Edited by John Brooks. (Trade and Travel Publications, Ltd., The Mendip Press, Parsonage Lane, Bath BA1 1EN England). Distributed in the U.S.A. and Canada by Rand McNally & Co., P.O. Box 7600, Chicago, Ill. 60680. (Cost is about $9 - $10.)

This small, hardbound, fine print book is absolutely packed with information on South and Central America, the Caribbean and Mexico. For each country there are maps, information on climate, geography, history, food, holidays, and best of all, city by city and town by town–– how to get around, what to see, and where to stay and eat. Furthermore, the **Handbook** isn't just for ricos. It includes listings for good 30¢ meals and dollar a night hotels with hot water. For most of us, the "how to get around" information is most valuable: what bus lines to take (and which to avoid), which border crossings are easiest, what to expect on long train rides (pack food), and which little airlines go where. For example, where else could you learn that "COPISA has a weekly flight (from Iquitos, Peru, in the Amazon basin) carrying monkeys, parrots, tropical fish and 10 to 15 passengers (10 hours, US$101) to Miami." (p. 502). The only problem with the **Handbook,** which is revised yearly, is that some information is out of date. For example, Peru has recently prohibited the export of wild animals which means COPISA may have discontinued its animal run to Miami. Then again, COPISA's plane may be out of commission. Still, if there is any possibility of getting anywhere, the **Handbook** will tell you. It is not B.S. and it is rarely downright wrong.

At the end of each country's chapter is "Information for Visitors" including travel in and out of the country by land, sea and air, motoring, necessary documents (visas, passports, etc.), working hours, climate and clothing, health, tipping, currency, food and shopping–– and more.

For the past two years we have pestered Rand McNally in San Francisco for the newest editions–– they sell out fast. If you can't get the **Handbook** in the U.S., it is for sale in La Paz, Lima, Quito, usually in the bookstores connected to the major hotels.

Still, there's lots the **Handbook** can't tell you, and I'll pass some personal experience along on travel in South America.

GETTING THERE: The cheapest is still Aerocondor from Miami to Barranquilla, Colombia for about U.S.$95 or $100. Be aware that Colombia (and Peru) will NOT let you in unless you have a ticket out. So a round-trip ticket on Aerocondor (good for a year) would be smart for Colombia. (Of course, for all these countries you need a passport and your vaccination card showing up-to-date smallpox immunization.) Important: Airplane tickets are cheaper in the U.S. generally, as most South American countries add a 10 - 15% tax on international flights. I have a return ticket, bought in San Francisco, from Lima to San Francisco, with unlimited stopovers in Quito, Bogota, Panama City, Guatemala City and Mexico City. Had I bought this in Peru it would have cost at least $100 more. And, of course, I had a ticket out of Peru, which I had to have to get into the country. Otherwise, coming in by land, you are forced to buy a bus ticket out of the country at the border, and these can be useless, expensive rip-offs. (At the Bolivian-Peruvian border you can buy a bus ticket out via Ecuador only to learn later that the Company won't honor it.)

Map by Beth Fairbanks

Drawings by Lynn Meisch

Box 428, Sausalito, California 94965

LANGUAGE: Except for Brazil and the Guianas, the dominant language is Spanish. You'd be surprised how many people come down here unprepared for this. Basically, the better your Spanish, the better the trip. Brush up on your high school Spanish, take a Berlitz or adult education class, get help from a Spanish-speaking friend, but get some background in Spanish!

I have checked out just about all the teach-yourself Spanish books and recommend only two, both of which I have with me on this trip. **See It and Say It in Spanish** by Margarita Madrigal (a Signet paperback, New York: 1961, $.95) is a word-picture method that moves right along. It's quick, easy and not weighted down with boring grammatical explanations. In the back is a traveller's reference with foods, colors, numbers, etc., AND complete conjugations of a number of verbs, AVOIDING such meaningless terminology as "present progressive" and giving instead English equivalents. For example: "I am singing - *Estoy cantando.*" This has been a painless introduction to the verbs for me—— I like it best for that. Advantage on a trip—— it's SMALL and light.

Sucre (Bolivia)—— Couple of "tarabuqueno" indians

Spanish Made Simple by Eugene Jackson and Antonio Rubio is "a comprehensive course for self-study and review." (Doubleday and Co., Garden City, New York, 1955) Paperback, $1.95. It's a big work book, and it takes discipline to use, but if you do your Spanish improves by quantum leaps. I try to use it for 10 or 15 minutes in the morning.

O.K., you know you're not going to bother to use the self study books. Then at least bring a Spanish-English dictionary. The best travelling dictionary is the University of Chicago's **Spanish-English, English-Spanish Dictionary** compiled by Carlos Castillo and Otto F. Bond. It's paperback and costs under a dollar.

Above all, avoid jabbering at people in English. At the La Paz airport, a fat British traveller next to me said irritably to the porters, "If I've said it once, I've said it three times! I don't want a taxi—— I'm waiting for a friend." Naturally, the only word the porters understood was "taxi" and when he said that they reached for his bags, leading to another ugly outburst. All he had to be able to say in Spanish was *"No taxi, gracias."* (I finally went over and explained in Spanish.)

CLIMATE: Most people think of South America as being typically tropical—— hot and sunny. This is true for the coastal regions and the Amazon basin. Otherwise, altitude determines climate, not latitude. What this means is that you'll freeze in Bogota, Quito, La Paz, Cuzco—— anywhere in the Andes—— unless you dress warmly. It goes down below freezing on the Bolivian *altiplano* in the winter (June, July and August). Central heating—— often ANY kind of heating—— does not exist. I have worn my down jacket and hood to bed and have still been cold. Summer is the rainy season—— November through March. Winter is colder but dry, and a better time to travel. (Road and railroad tracks wash out in the rainy season rendering many places inaccessible..) Note: Seasons are the reverse of ours south of the Equator. Lima is overcast and chilly June-October.

HEALTH: Sanitary conditions are somewhere back in the 16th century. We are contending with a population that does not necessarily believe in the germ theory of disease. Not a single city in Bolivia has potable water. The streams that supply water are also used by the campesinos as latrines. In fact, it is not unusual to see people pissing and shitting right in the streets. And the flies go from the shit to the food in the markets, and right in the door of the corner cafe. . . . So, before you budge, get immunizations against the following, and have them duly noted on your yellow health card: smallpox (required), tetanus, typhoid-para-typhoid, yellow fever, polio; and gamma globulin as protection against hepatitis. Many travellers coming out of the Cuzco area have been coming down with hepatitis; it is also prevalent in Ecuador and Bolivia.

Once you don't have to worry too much about any of the above, meet the intestinal parasites. Most travellers get the "turista"—— sometimes it's just a change in food and water. And sometimes it isn't. LOMOTIL, the travellers' standby, only treats symptoms. It stops you up. It does not deal with the nasties causing the problem. For "the usual enteric pathogens" (to quote the directions) including "many species of salmonella, shigella, E. coli, Proteus," etc., we have been using FUROXONA (Eaton Laboratories). The average adult dose is one 100 mg tablet 4 times a day. The problem will (should) clear up in two to five days. This is our first line of defense and it works. Note: alcohol should not be used when taking FUROXONA—— it can make you nauseated.

Some doctor is immediately going to be up in arms about my advice, saying the traveller should get advice from his family doctor. It's been my experience that most of us don't have family doctors—— we go to Free Clinics or suffer. Also, most family doctors are in total ignorance about tropical diseases, don't know what to suggest, or what drugs are available down here. All the drugs mentioned here are available in pharmacies throughout South America without prescription. Obviously if you are allergic to certain medications, or get a bug that hangs on, check with a doctor down here. Word of mouth and advice from travellers and foreigners living here will lead you to the better clinics. (Health care is nowhere as expensive as the U.S. A friend spent 3 weeks in the excellent Methodist Hospital in La Paz with hepatitis. Her total medical bill was $300.00. However, it's a lot cheaper and more pleasant to get a gamma globulin shot before you come down here, and avoid the hospital all together.)

This next drug actually was prescribed for me by a doctor in San Francisco, and it is almost uniformly prescribed down here. It is FLAGYL, and it is for amoebas, one-celled creatures that can live in your intestinal tract and wreak havoc. How do you know if you have amoebas? Some people have no symptoms at all. Others have severe stomach cramps and bloody diarrhea. If you off and on have bad, sharp stomach cramps, notice blood or mucous in your shits, have bouts of diarrhea and generally don't feel up to par, it's probably amoebas. As a caution I'll suggest going to a hospital or clinic and having a stool specimen analyzed. FLAGYL is specifically prescribed for amibiosis, and the dosage is 2 250 mg pills, three times a day, for six to eight days. Again, you should not drink alcohol.

Last but not least, you may get worms. Again, the drug almost always prescribed is Piparazina. Take 2 teaspoonsfull a day, for two or three days and the worms drop dead.

After this list of dire possibilities I must say that I usually feel great in South America and have not been bothered by anything but a bad cold and amoebas (which FLAGYL took care of). But, Bill and I get all the shots before we go, and observe the minimal precaution of not drinking the water, although we use it to brush our teeth. We always travel with FLAGYL, FUROXONA, and LOMOTIL, as something usually stikes at the most inconvenient time, such as a 2 day holiday when all the pharmacies are closed.

GENERAL BACKGROUND: I don't believe that ignorance

is bliss when it comes to travel. I am a book fanatic, but I am trying to restrain myself, and will suggest just a few.

So you don't say, as one American did to me, ". . . the Aztecs of Peru. . ." I suggest that everyone coming to the Andean countries read **Realm of the Incas** by Victor W. Von Hagen. (Mentor paperback: $1.25.) It's readable, has good illustrations and photos, and gives a picture of what life was like in the Inca Empire, with chapters on "Medicine, Magic and Curing," handicrafts, "Inca Architecture," "Bridges," etc. Von Hagen has good maps of some of the major Inca ruins in Peru--- very helpful when you're visiting them.

There are a number of excellent, scholarly, more technical paperbacks on the Pre-Columbian cultures, but, as I said: restraint. I'll just mention a few titles: **Ancient Arts of the Americas** by G.H.S. Bushrell, **The Ancient Civilizations of Peru** by J. Alden Mason, **A History of the Incas** by Alfred Metraux, **The Conquest of Peru** by William Prescott, **The Lost City of the Incas** by Hiram Bingham.

Poetry: get Pablo Neruda's **The Heights of Macchu Picchu.** Novels: Read ANYTHING by the Colombian Gabriel Garcia Marquez, but particularly **One Hundred Years of Solitude.** No superlatives will suffice. (These are all available paperbacks.)

Modern South America: An absolute must is: **The Shadow: Latin America Faces the Seventies** by Sven Lindqvist. (The Pelican Latin American Library, $2.45.) This is high quality, conscientious, well-researched and well-written sociology-journalism. He begins and ends with interviews with people in the Lima slums and it's gripping. So is everything in between.

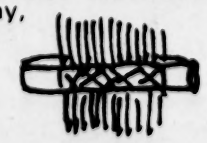
If you are really interested in the Indian cultures, go to the library and peruse the multi-volume **Handbook of South American Indians** (Vol. 2 has a lot of the Andean Quechua and Aymara).

Enough. But it strikes me as both stupid and rude to come down here not knowing anything about these countries.

WHY COME AT ALL? I'm not intent on convincing anyone to come down here. Only 6% of the world's tourism comes to South America-- all to the better. People say to me, "Don't write about Ecuador, don't write about Bolivia-- keep them secret." The continent is a naturalist's paradise-- there are at least twice as many species of birds in Colombia as in all of North America. The Galapagos Islands, the Amazon basin abound in wildlife. On a short trip to the Bolivian jungle I saw Mackaws, parakeets, flycatchers, Oropendulas, and heard a Toucan Barbet, met the Leaf Cutter Ants, and watched an experienced animal handler hold a rainbow boa, and a pucarara, a venomous snake. I also saw a paka, dead-- a sleek, fat, big rodenty animal, whom the hunters had shot for dinner. It was the first time in my life I had ever seen the animal killed that I was later to eat. Out of respect for the paka I felt compelled to look at him-- other members of our group preferred not to. (He was very tasty!)

The main attraction for me is the Pre-Columbian cultures, and the contemporary Indian cultures. As a weaver, I stand in awe of the textiles-- ancient and modern. They are beautiful -- ponchos, dhuayos (carrying clothes), blankets, rugs, chuspas (coca pouches), sweaters. . . .

Coming from San Francisco, Calif., where fads abound (remember fringed leather vests?) I very much like the Indians' common sense in retaining clothing and customs that work. The poncho must go back a thousand years, the backstrap and horizontal loom two thousand. The University's museum here in Cochabamba has textiles from 1200 A.D. that are virtually identical to ones woven today, and combs from tombs of the same period that are absolutely identical to ones sold in the Cochabamba market.



On June 23rd Bill looked out our window at twilight and wondered what was happening-- the hills around Cochabamba were dotted with bonfires. It was beautiful, as if the sky was lower than usual and the stars brighter. I looked at my calendar; it was St. John's Day, and legend has it that Elizabeth had fires lit across Israel to announce to Mary that John had been born. But that's only a minor part of the story. It was also the winter solstice, the shortest day of the year. The Quechua name for the month is Inti Raymi, the Feast of the Sun. For thousands of years-- time beyond time-- bonfires burned on the mountains in Bolivia to bring back the sun and light up the longest night of the year. The Spanish, unable to eradicate this religious celebration, attempted to give it a Christian meaning. Thus all over the Andes the feasts of minor and insignificant Catholic saints are celebrated because they happened to coincide with Pre-Columbian festivals-- harvest, planting, solstice-- the rhythm of the seasons and of agriculture. There's a sense of the enduring unlike anything I've experienced in the United States.

WHAT TO BRING: Backpack versus suitcase: A suitcase

gives you added respectability and renders you less conspicuous as the only people travelling with backpacks are foreigners. It depends on your own preference, however. (We travel with suitcases.) Sleeping bag: Not necessary unless you intend to do a lot of camping, or rent a house in an Indian village for a few months. If you just want to see a few countries a sleeping bag is unnecessary. Bill and I brought them along-- and left them with friends in Lima. A down jacket with a hood and stuffsack is probably the single most useful item I have along. The Andes are cold at night, although hot and sunny during the day. Other essentials include a Swiss Army knife with can opener, etc.; zip-loc bags; earplugs; a towel, as the less expensive pensions do not supply towels, soap or toilet paper; and a money belt. The kind of money belt we use cost about $3.00 at a luggage store, and is worn around the waist under our jeans. It is wide enough to hold passport, plane tickets, health card, travellers checks and cash, and zips open along the top. Because thievery, pickpocketing, purse snatching and purse-slitting is a problem (mainly in Colombia), the money belts have proved invaluable. They are accessible, yet no one but yourself has easy access, and they are invisible. No hassles with stolen passports and lost money. The peace of mind is worth it.

I'd also suggest bringing one pair of shorts, a bathing suit, a flashlight, a travel alarm clock, sun screen lotion, insect repellent (I recommend Cutters), a pair of sandles and a pair of comfortable walking shoes. The last trip we brought hiking boots and found them too heavy and too hot. This trip Bill brought Adidas shoes, and I have canvas shoes with crepe soles. Also, bring one pair of pants other than jeans, or one skirt or dress, and warm sleepware-- flannel pajamas or a long nightgown. I repeat: it gets cold.

Don't count on being able to replace something down here—— ANYTHING. This especially applies to large or lanky people —— you will dwarf the South Americans and will be unable to find clothes in your size. Also, bring enough film, batteries, special medicines or cosmetics to last. I have not been able to find a 9 volt alkaline battery in Bolivia, for example. Dental floss was very hard to find in Colombia. Tampax is sometimes hard to find, and expensive—— $5.50 U.S. for a box that costs $1.49 in the U.S. Load up on toiletries—— soap, toothpaste, shampoo, etc.—— in Colombia and Peru—— these items are cheaper there than in Ecuador, Bolivia, Paraguay. (I haven't been in Brazil, Chile, Argentina, but suspect the supply and prices are comparable to Colombia and Peru.) Also bring plenty of zip-loc bags—— the gallon size.

Finally, bring along a 2 lb. bag of your favorite kind of granola, a plastic cup and a spoon. This is related to Travel Rule Number One:

Never get on any transportation going anywhere without food. Buses sometimes don't stop for dinner, and worse, sometimes they break down leaving you stranded for hours. And sometimes you arrive in a town ravenous at 10:30 at night only to discover that NOT a single eating place is open. Even airports don't always have food. Only about 1/5 of my (many) flights in South America have been on time, meaning leaving within an hour of their scheduled times. The rest have been late from 2 to 8 hours (and I have been hungry). You can load up on fruit, sandwiches, etc., for travel at the markets. Buy a can of juice, and save it, and the granola ONLY for emergencies. Granola with pineapple or orange juice instead of milk is delicious.

A Chuspa - a coca leaf pouch

(3 inches by 3 inches)

Travel Rule Number Two is: Always ask prices beforehand. You learn this very quickly, especially in taxis. ALWAYS agree on the fare before you get in—— the drivers love to hit you up for an outrageous fare if you forget. The same goes for restaurants where the prices aren't listed on the menus. Ask first.

DRUGS: Nothing I say will probably change the mind of anyone who comes down here for drugs. Right now the big deal is cocaine. At present the U.S. government is working with the governments of South American countries to curb its production. However: Distinguish the white powder from the coca leaf, which is legal, and consumed by the Indians to the tune of millions of tons a year. In Peru and Bolivia, for example, you can easily and legally chew the leaf, or order *mate de coca* (coca leaf tea), if you feel the need for a mild stimulant, or want the experience. (*Mate de coca* is recommended by the hotels and restaurants for *soroche,* altitude sickness.) Grass, amphetamines, barbiturates, opiates are frowned on. Since I know no one will pay attention to my advice to stay clear altogether, at least be cool and careful—— discreet, in a word.

A long-haired freak from Seattle checked into the hotel I am staying at in Cochabamba with the complaint that he had spent the day in jail. This dolt was sitting in a restaurant powdering up some pills to get high when the management called the police. Not only was he interrupted, but the police confiscated his tear gas bomb. (I have to add that as a woman, now travelling alone, about the last thing I've ever considered carrying was tear gas spray.) Unfortunately there are more people like this than you'd like to think, and they do not always get out of jail in a day. He was lucky.

Long hair on males isn't the issue it used to be, but it is an advertisement that you are a "hippie." "Hippie" usually means drug. Therefore, the straighter you look the less chance you have of being hassled (about anything).

MONEY: Take all you think you'll need, plus $500 more, and then leave another $300 - $500 with your most trusted friend or relative to be wired to you when you need more. (Don't trust the mails.) Many countries have an official minimum for travellers, for example Peru wants you to have $8.00 for each day on your tourist card. However, if you look straight and/or arrive by air they rarely question you. IF you happen to run into problems explain that your family is wiring you XXX dollars to the Bank of America in Lima, which is why you don't have much now. Take half your money in Travellers Checks, half in cash (and put it ALL in your money belt). Dollars cash bring a better exchange rate in Colombia; Travellers Checks or dollars command a very good price on the black market in Peru. (The official rate is 43 soles to the dollar, but we've gotten from 50 to 55 soles per dollar on the illegal money market.) It doesn't matter in Ecuador and Bolivia—— no black market; but occasionally someone in Bolivia will want to buy dollars cash from you at better than the official exchange rate. Note: Peru is the only country now uptight about dollars (Chile used to be)—— you are only supposed to change dollars in official banks at the official rate. Like a lot of laws down here, particularly when there is money to be made, this one is honored in the breach. However, be discreet and careful.

Try to use up your money before you leave a country—— no one wants the other country's money. Generally, actually always, you can get your, say, Peruvian soles, changed into Ecuadorean pesos in Ecuador, but sometimes you take a loss.

Note: Ecuador is the only country I know of that lets you cash Travellers Checks for American dollars (in other countries you have to accept the local currency). It's a good deal to do this before going into Peru.

INDIAN MARKETS: I really haven't said much about the book I'm researching on the Indian Markets and Handicrafts because I don't know where to begin. I'm not writing a "Where to Buy Things" Guide, but trying to give background on the Indian communities; how things are made, where and by whom, their meaning; food, fiestas and feast days; music and dance; economics.

The Indian Markets are ancient, pre-dating the incas. In the Inca Empire, 3 days a month were set aside as market days, where the Indians could exchange surplus goods, and hear official announcements—— and socialize and have a good time. I want to document these markets before the Indians become assimilated and these cultures disappear—— although I don't think this will happen soon. I agree with Octavio Paz that "Every view of the world that becomes extinct, every culture that disappears, diminishes a possibility of life. . . ." (In **Seven Voices** pp. 267-268, Rita Guibert interviewer.) For most tourists the Indian culture is so alien they don't even bother looking. They don't see. I'm trying to see myself, and to open some doors for others.

By the time I'm done I will have visited nearly a hundred markets. At many I've been the only tourist, or one of perhaps five outsiders. Some favorites: the Saturday Market at Azogues, Ecuador (near Cuenca). This is a center of the mis-named "Panama" hat industry. Lots of hats. Every campesina coming into town has two or three. Only the hats are unfinished—— all bristly around the edges, with long strands of *paja* straw sticking out. In the main plaza there is lots of bargaining as the unfinished hats are sold to middle-

men who have them finished, bleached and blocked. The ladies then buy a bundle of *paja* for their coming week's work. There were no other tourists and nothing to buy (except food), but since it wasn't a tourist market there were no hypes, no touristy items. I was fascinated by everything, including the haggling over the guinea pigs (*cuis*) destined for the stew pot. About the funkiest band I've ever heard played with great application, and the cows, pigs, roosters, chickens and ducklings being sold or traded came in right on the beat, such as it was. It is a large, bustling, down-home market—— lively and colorful. No one payed me any mind and I had a fine time.

The Saturday Market in Otavalo, Ecuador, is a tourist market, but I like it, too. The Otavalenos are the success story of the Andes, having become prosperous and famous through their weaving. You see Otavalenos all over Colombia and Ecuador selling their scarves, ponchos and other goods. They are proud, intelligent, spotless, and smart—— they've put their money into land in their beautiful valley, and into shops in Quito, and into learning new weaving and marketing techniques. The Otavalo dress is unique, and they're proud of it. They've managed to participate in the money economy and resist total acculturation. An anthropologist in Cuenca, in the south of Ecuador, told me there were Otavalenos working in the Indian community of Saraguro teaching dance and Indian pride. Redwood, a fellow Californian, has lived in the Otavalo community and has a book out on the back-strap loom weaving there. If I owned land anywhere in South America I would like it to be in the Otavalo Valley. The men weave on both backstrap and floor looms, and it's a good place to go to study weaving, as you can find a teacher who speaks Spanish and is willing (and able) to spend time with you. (Again, a fee should be agreed upon for his efforts.)

In Bolivia I piled in the back of a 4-ton truck with 40 other campesinos and their bundles, for a 2½ hour ride to the Sunday market in Tarabuco. The Tarabuquenos are Quechua speakers. In fact, Quechua is also spoken in Otavalo, and Azogues, as it was the official language of the Inca Empire, replacing local tongues. The big fashion impact in Tarabuco was the Spanish conquest and all of the men, and some of the women, wear leather hats fashioned after the Conquistadors' helmets. The men wear brightly striped ponchos, mainly red; wide leather belts, white wool pedal pushers, homespun shirts, a smaller poncho tucked under their belts over their ass, and carry very fine *chuspas* (coca leaf pouches). They are striking—— and this is their everyday dress. It's a community of superb weavers. The market is very small—— a couple hundred Indians, but they are aware that their weavings are in demand. Sooner or later a man will approach and open his *ahuayo,* producing some magnificent textiles—— generally. (Unfortunately I also saw a few of shoddier weave made to sell to tourists.) The men not selling were sitting on the curb chewing coca leaves and playing the *charango,* a ukulele-like instrument. There were only about 6 other tourists, as not too many people bother with the truck ride, which was very cold early in the morning, but warmer coming back. I was so busy looking at textiles that I didn't do as much filming as I should have. The Tarabuquenos, like the Otavalo Indians, are showing up at other towns' markets with their textiles. I don't think there is a floor loom in the village, however, which means that everything is woven slowly and painstakingly on backstrap or vertical looms. Some of the newer textiles are less complex, to save time. I was mainly interested in the older (always used) weavings, to the puzzlement of some Bolivians at my hotel, who couldn't understand my joy in obtaining some dirty, old Indian things (my treasures!).

Tarabuco is near Sucre, the old capital of Bolivia. For some reason I don't understand, the Bolivians in Sucre harrass the Tarabuquenos. I saw three instances of real meanness—— people grabbing at the Indians' *chuspas* and *charangos,* and teasing them. When one Indian unwrapped his *ahuayo* to show me his textiles a group of high school age boys started taking his belts, pulling at them, and digging through his things roughly, until he got frightened and closed up his bundle trying meanwhile to get his belts back. (We went somewhere else to look at them.) I was surprised by this, the first instances of Indian baiting I've seen anywhere. I can't say the Tarabuquenos bring it on—— they are certainly pleasant enough, unobtrusive and not drunk in the street or anything like that. And they aren't dumb.

This week I'm heading for the markets in the Cuzco, Peru area, so I really don't have much to say about Peru, yet. Peru is the most heavily touristed country down here, with thousands of Europeans, as well as Americans, pouring in every summer. For that reason, some of the markets I have visited in Peru have been disappointing—— lots of stuffed llama toys and cheap, gaudy rugs. The Cuzco area, the Lake Titicaca area, and remoter parts of the Andes are still very traditional and I'm looking forward to that. That is, I'm looking forward to being there, not getting there, as the bus rides are horrendous and I'm out of granola.

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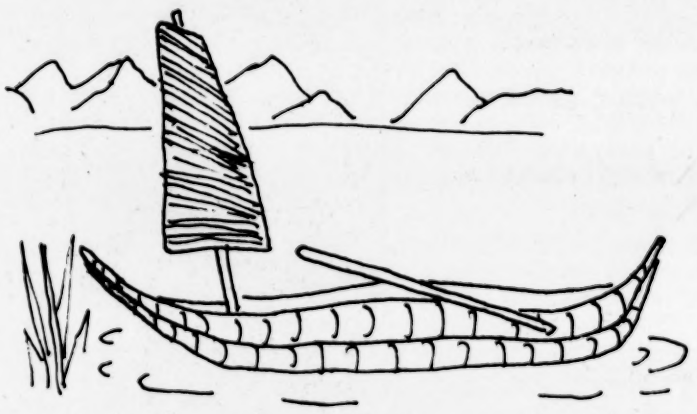


Totora Reed Boat, Lake Titicaca

AT NIGHT ON THE RIVER

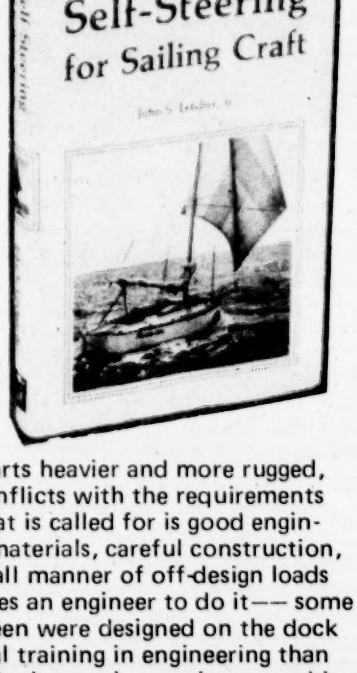
REVIVE THE PLEISTOCENE,
save the substrate,
let us have huge animals
and diversity
of plants
whose trunks
and tendrils
intertwine
in veldts
and subtle forests.
Let
us
prepare
to love this place
before we leave it.
Let our skulls sprout
invisible tentacles
of sympathy
for birth
and death
for we are but
a breath
of fairy substance
falling on the endless
—— tufts of fluff
upon the Amazon.

—Michael McClure
In Peru, 1974

Self-Steering for Sailing Craft

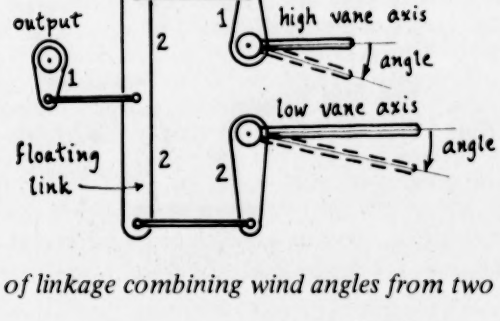
On your dream round-the-world sail, who steers the boat while you do other things such as eat and sleep? Self-steer mechanisms are the answer, but they are subject to so many variables that making one turns out to be a very complex undertaking. Mr. Letcher brings an engineer's skill and good old Maine Common Sense together and tells you how it can be done. He presents the basic theory so you can figure it out for yourself (I know of no other book that does). Just about every imaginable device is reviewed, with several tough, practical designs shown in detail. There's a really good discussion of oscillation damping that might be useful in other fields. And many clear drawings and photographs. You might even find it fascinating if sailing isn't your interest right now.

—J. Baldwin

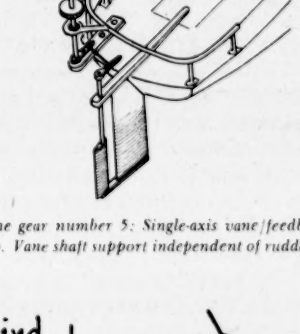


Self-Steering for Sailing Craft
John S. Letcher, Jr.
1974; 262pp.
$12.50 postpaid
from:
International Marine Publishing Co.
21 Elm St.
Camden, ME 04843
or Whole Earth

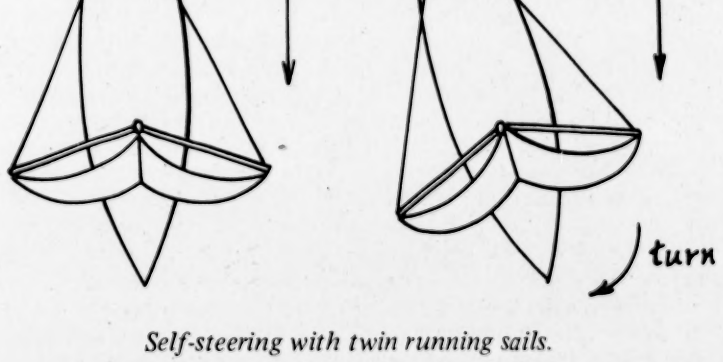
Simply making the working parts heavier and more rugged, or the foils smaller, usually conflicts with the requirements for power and sensitivity. What is called for is good engineering: efficient use of good materials, careful construction, and thoughtful foresight into all manner of off-design loads (accidents). Not that it requires an engineer to do it—— some of the best vane gears I have seen were designed on the dock by people with no more formal training in engineering than I have in theology. They just had enough experience working with materials and boats to figure out what was required, and they succeeded.



Example of linkage combining wind angles from two vanes.



9-8. Windvane gear number 5: Single-axis vane/feedback linkage/ servo tab. Vane shaft support independent of rudder.



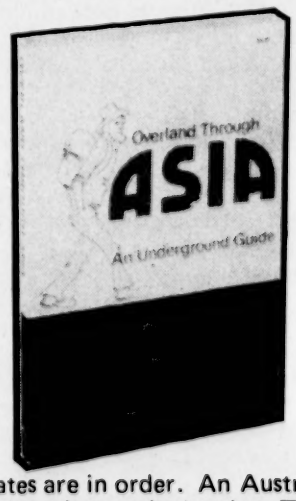
Self-steering with twin running sails.

Overland Through Asia

Just as some people play a flute "naturally", so Mr. Dowsey-Magog is a natural born traveller. He writes clearly too, avoiding the usual useless stuffing that one finds so often in this sort of book. He wisely protects this information from premature obsolescence by insisting that the compiling of current facts and numbers be done by you at the time you need them. He just tells you what you need to know and where to find out. Lots of details too, on such diverse subjects as which bus line in Afghanistan is most reliable and when to use public transportation to thwart bandits. His advice closely matches the experience of several people we know that have been over the same ground. The book is especially good describing the differences between countries that could make trouble for you, particularly at a border. There are several tables at the back of the book giving fares for the various means of public transportation, and currency exchange rates. All good stuff. If you're going there, you'll probably need this.

—J. Baldwin

Overland Through Asia
(An Underground Guide)
Paul Dowsey-Magog
1974; 153pp.



$4.95 postpaid
from:
Glide Publications
330 Ellis Street
San Francisco, CA 94102
or Whole Earth

Make sure your health certificates are in order. An Australian friend of mine had to get a cholera shot at the border. The needles were kept in a rusty tobacco tin—— need I say more?

•

Other hotels are the Thai Song Greet (Rama IV Road) or the Mittapan Hotel (Mittapan Road), both near Hualampag Railway; similar hotels nearby are usually complete with prostitutes. Outside Bangkok, it is possible to stay at Buddhist wats but you may have to give English lessons to the monks. Also mind your manners! Don't swat flies and mosquitoes—— just grin and bear it.

The best way to say how to buy a boat and sail it around the world cheap is to tell how we did it.

In 1967, Kansas and Miles started talking up the idea of buying an old hull, refitting it and sailing somewhere. In August 1969 they gethered with 20 or so friends and relations in Vancouver BC to light it off. They had located the Copenhagen Ship-sales Bureau, a boat brokerage which dealt in old wood sailing freighters. In Vancouver we bickered and quibbled, and decided that $1500 was a nice buy-in—— small enough that anyone who wanted to could save it or raise it or find it, and also large enough. One person kicked in to a new bank account. Four people said they would go to Copenhagen soonest and buy a boat. Ten people said they would put in their money without delay. Everybody said something and we all went home.

In October 1969 four of us arrived in Copenhagen. Two worked passage on a freighter out of New York. (It is easy. Don't believe people who say it can't be done.) Two flew. We installed ourselves in a hotel room with a lot of books about boats and started looking around scandanavia at possible hulls. At this point our total experience with boats, sailing and the sea was zero. We read a lot of books, looked at a lot of boats.

In December we bought the Blue Wind, built in 1921 in Sweden as "SOFIA", a 3 masted 90 foot schooner. When we bought it, one mast was gone, two other and the bowsprit cut short, a wheelhouse and engine added, and the sails and rigging long gone. We hired a captain to help us motor it from Sweden to Denmark, and we tied up in downtown Copenhagen (free, since we were an ethnic boat in an ethnic location). We still had no experience. Also no electricity, heat, running water. And no money.

If you can get your project to this point, you are all set. The only possibilities are success and disaster. The most likely outcomes of this kind of venture are foof-out and poop-out, and when you are living aboard your own hulk in a foreign capital in mid winter, these two are no longer available as options. You can't just walk away from 125 tons of boat.

We spent the rest of the winter moping, but come spring some more eager people came bringing money and warmth and we were able to rebuild the engine, fit out with water tanks and ballast and such other necessaries to motor out of Denmark (very expensive) headed for Spain (very cheap) to rebuild and refit. While in Denmark we read more books talked to more people, and had a naval architect draw up a set of plans for masts and rigging to provide us with clues how to proceed. Brad showed up, who had actually been on a boat before and knew which end to stand at to drive, and we fumbled our way out of Copenhagen and the Baltic Sea to England, Spain, Portugal, and Spain.

We spent most of 1970 in a small fishing village on the South coast of Spain learning the wonderful power of ignorance. Example—— Joe was pretending to caulk a seam in the deck with oakum and pitch when came a growl from the quay, "here in Spain we do it a little differently." The man behind the voice, a shipwright, happily showed us how to do things for months after. Or, in Palma de Majorca the boatyard at the yacht club generously offered to install our new masts for several thousand dollars. We were tied to a freight loading dock (this kind of boat is a freight area boat rather than a yacht club boat—— highly superior) and the watchman thought he was pretty good with a cargo loading crane—— said he could step the three masts with it in a hour or two, at five dollars an hour. We never did find out how to import the motorcycles we had aboard from Denmark into the various countries we sailed to, and we never found out that boats must have papers and captains and flags and things. We probably never learned a lot of things we should have learned, but so far so good.

During the time in Spain we discarded everything except the hull, the engine and half the deck. Everything else we rebuilt using iron and pine and junk instead of yacht materials and fittings. Common sense and books and advice and do it twice or three times instead of experience and skill. Argument and filibuster and impulse instead of a captain and a sense of direction. (For months we debated removing the wheelhouse, which postdated the original boat. It's warm and dry. It's weak and dangerous and ugly. Two in the morning, "lets tear down the wheelhouse" so we rushed on deck, friend and foe and smashed it to bits.)

Nothing to it. After SOFIA was a sailboat we sailed around the Mediterranean till the continually struggling go westers prevailed over the greekophiles and their friends, then back to Spain to work a few bugs out of the system. Then on to Gibraltar Canary Islands Cape Verde Islands West Indies Panama. Galapagos Islands and central america, Tahiti Bora bora Cook islands and Tonga, and still going west. Until maybe a stronger group of greekophiles or something turn it around.

We never met another boat or group like us. There are so few boats cruising in the world you soon seem to meet or hear of all of them, but none like the SOFIA. Not very many of any kind. Millions of ocean, free food good people fun challange adventure—— the whole thing and nobody there. Why not? It is easy and it is great fun and everybody says they want to do it, and nobody does it.

—Joe

•

Quickies

Vagabonding *is a new youthful enthusiastic little magazine for hard travelers edited by Joe Williams. $6/yr (bi-monthly) from:*

Vagabonding
Box 20095
Oklahoma City, OK 73120

Hong Kong sail manufacture *costs one-half what it does in U.S., J. Costello informs us. Contact:*

A. Lam Sail Maker
Cable Address: "Alamsail"
Hong Kong P.O. Box 4011
Shaukiwan
13th Floor, Wah Ha Factory Bldg.
Block "C", Shipyard Lane, Quarry Bay,
Hong Kong
Tel. 5-624235, 5-612138

Mail-order down *is available but expensive, Pam Cokeley reports. "Howard Gottstein at the Down Depot says there aren't too many places that mail-order Grade A goose down. Sierra Designs (CATALOG, p. 264) does, in 4 oz., 8 oz., and 1 lb. bundles @ $26.00 a pound ($13.50 a half-lb, $6.50 a quarter-lb). This is pretty expensive—— Pacific Felt in San Francisco which does not mail-order sells it for $16.00 a pound, and if you buy 15 lbs or more, the price per pound drops to $12.55. If people can find other places like these in their own areas, it seems dumb to list a mail-order price which is 2X as expensive."*

—SB

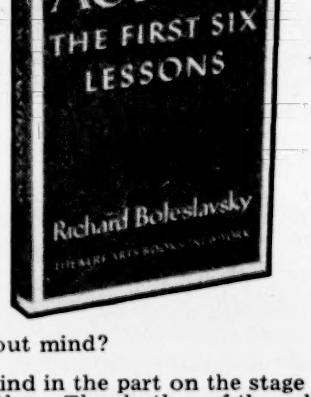
Communications

Acting: The First Six Lessons

This book, about teaching a young lady, "The Creature", what acting is about, is recommended for all anthropologists, psychologists, and others who are impressed with the ridiculousness and grandeur of people. It's done in the form of a dialogue between Boleslavsky and the creature and is almost impossible to quote because what the book has to say is mostly in the way the dialogue is put together.

—Gregory Bateson

Acting: The First Six Lessons
Richard Boleslavsky
1970; 122pp.
$3.25 postpaid
from:
Theatre Arts Books
333 Sixth Avenue
New York, NY 10014
or Whole Earth



THE CREATURE: How about mind?

I: Characterization of the mind in the part on the stage is largely a question of the rhythm. The rhythm of thought, I should say. It does not so much concern your character as it concerns the author of that character, the author of the play.

THE CREATURE: Do you mean to say that Ophelia should not think?

I: I wouldn't be so rude as that, but I would say that Shakespeare did all the thinking for her. It is his mind at work which you should characterize while acting Ophelia, or for that matter, any Shakespearean character. The same goes for any author who has a mind of his own.

THE CREATURE: I never thought of that. I always tried to think the way I imagined the character would think.

I: That is a mistake which almost every actor commits. Except geniuses—who know better. The most powerful weapon of an author is his mind. The quality of it, the speed, alertness, depth, brilliancy. All of that counts, without regard to whether he is writing words of Caliban or those of Jeanne d'Arc, or those of Osvald. A good writer's fool is no more foolish than his creator's mind, and a prophet no more wise than the man who conceived him. Do you remember Romeo and Juliet? Lady Capulet says about Juliet 'She's not fourteen'. And then a few pages later Juliet speaks.

> "My bounty is as boundless as the sea,
> My love as deep; the more I give to thee,
> The more I have, for both are infinite."

Confucius could have said that, or Buddha, or St. Francis. If you will try acting Juliet's part in a way which characterizes her mind as a fourteen-year-old mind, you'll be lost. If you try to make her older you'll ruin Shakespeare's theatrical conception which is that of a genius. If you try to explain it by the early maturity of Italian women, by the wisdom of the Italian Renaissance, and so forth, you will be all tangled up in archaeology and history, and your inspiration will be gone. All you have to do is to grasp the characterization of Shakespeare's mind and follow it.

THE CREATURE: How would you describe the quality of it?

I: A mind of lightning-like speed. Highly concentrated, authoritative, even in moments of doubt. Spontaneous, the first thought is always the last one. Direct and outspoken. Don't misunderstand me, I'm not trying to describe or explain Shakespeare's mind. No words can describe it. All I am trying to do is to tell you that whatever character of Shakespeare you perform, its mind (not yours but the character's) must have those qualities in its manifestation. You don't have to think like Shakespeare, but the outward quality of thinking must be his. It is like portraying an acrobat. You don't have to know how to stand on your head, but all the movements of your body must convey the idea that you are able to turn somersaults whenever you wish to do it.

Musical Heritage Society

The Musical Heritage Society catalog lists over 1200 recordings (by composer and by performer) and offers them at $3.50 each—— a relatively inexpensive alternative to the retail record store. Many of the selections are not available elsewhere and all of them are guaranteed to be high quality stereo. Their introductory offer of 4 records for the price of 3 (plus postage) proved irresistible.

—Diana Fairbanks

Catalog
from:
The Musical Heritage
Society Inc.
1991 Broadway
New York, NY 10023

PACHELBEL, Johann (1690-1706)
Canon in D for Strs. & Cont.; Partia No. VI in B-flat for Strs. & Cont. see 1060

Chaconne in F minor; Hexachordum Appollinis, 1699
Marga Scheurich, Harpsichord 1011

•

CARMINA BURANA from 13th Century Manuscripts—Music and poetry of the Goliards, Medieval students who left us the first examples of secular—bawdy and profane—music. Performed on a variety of reconstructed medieval and renaissance instruments, solo voices and small male chorus. Cappella Antiqua of Munich, Konrad Ruhland, Dir. OR 319

Olympic office machine catalog

Mike Phillips showed us the catalog from this outfit in Los Angeles, which offers calculators, typewriters and related office equipment by mail at substantial savings. Examples: Hewlitt-Packard HP-65 Programmable Calculator (EPILOG p. 707—— $795.00) for $699.50; Phone-Mate 400S (EPILOG p. 673—— $139.95) for $119.90. The catalog is well illustrated and provides full specifications so you can do some intelligent shopping. We haven't tried them out. We'd be interested to hear whether they give good service.

—Andrew Fluegelman

Catalog
from:
Olympic Sales Company Inc.
216 South Oxford Avenue
Box 74545
Los Angeles, CA 90004

Lettera 32 MANUAL

YOUR COST FROM US
$66.98
Suggested Retail
$94.50

FEATURES
49-KEY KEYBOARD
AUTOMATIC TABULATOR SET, CLEARED AND CONTROLLED FROM THE KEYBOARD
AUTOMATIC PARAGRAPH INDENTATION
HORIZONTAL AND VERTICAL HALF SPACING
MEMORY LINE FINDER
TWO COLOR RIBBON
CARRIAGE LOCK LEVER
PERSONAL TOUCH CONTROL
SNAP-UP PAPER SUPPORTS
TORQUE PLATEN PRODUCES ORIGINAL AND UP TO 6 CARBON COPIES
LARGE WIDTH CARRIAGE ACCEPTS FULL SIZE #10 ENVELOPES
ATTRACTIVE CARRYING CASE

PHYSICAL CHARACTERISTICS
WIDTH 13"
LENGTH 13"
HEIGHT 7"
NET WEIGHT 9½ LBS.
SHIPPING WEIGHT 17 LBS.
ALL METAL CONSTRUCTION

The Casio calculator

As predicted (EPILOG p. 707), the prices of hand calculators have dropped significantly since we put together our Epilog article, with the result that nationally distributed name brand models are now selling at the price level of the close-out we mentioned.

My current choice for a "best buy" is the Casio "Mini-Memory with Percent", which you should be able to find selling for $39.95 without extensive shopping.

It features an 8-digit display, four-functions, algebraic logic, floating decimal with significant integer retention, chain calculations, multiplication and division with a constant, squares, powers and reciprocals. The memory is a separate register to which the results of intermediate calculations can be added or subtracted, and the total in memory can be recalled for use in subsequent calculations, or checking without erasing the total. This enables you to set up the calculator with automatic conversion functions. There are separate clear functions for entries, intermediate calculations, and the memory. The percent function enables you to compute a percentage of a figure and mark it up or down by it without using the memory.

Although there is only an 8-digit entry and display, you can calculate products and quotients up to 16 digits and add/subtract up to 15 digit totals through the use of a flip switch which lets you see the "lost" digits, then returns the 8 most significant ones which initially appeared on the display. (Only 8-digit capacity in the memory)

It employs an unusual horizontal design, with the display to the left of the keys, which is quite comfortable to use. The keys are well-spaced, and operate smoothly and positively, with little tendency for error. The display has large, legible, bright green digits. Actually, the "feel" and ease of operation of this calculator would make it noteworthy regardless of the fact that it also happens to be selling at the current rock-bottom price.

Power is by four AA batteries. Alkaline batteries will last for 40 hours of continuous operation. (I think these are preferable to built-in rechargeable batteries: you're not wedded to your recharger, the "field" life is longer, and new power is always available at a drug store.) An AC adaptor is available for an additional $5.00.

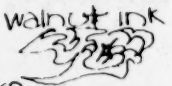
For under $40, this is a good deal. Casio also makes a similar model, with square root instead of percent, for $60, and a scientific calculator for $80 with exponential read-out, log, trig, square root, inverse, exchange, etc. which seems to be even more of a bargain.

Its really gratifying to see an industry where competition seems to be benefiting the consumer. There might be a new "reigning champion" sometime in the future, but for now, the Casio folks seem to be it.

The Casio Mini-Memory can be obtained by mail from the Whole Earth Truck Store (558 Santa Cruz, Menlo Park, CA 94025): $39.95 for the calculator, $5.00 for an AC adaptor, both postpaid.

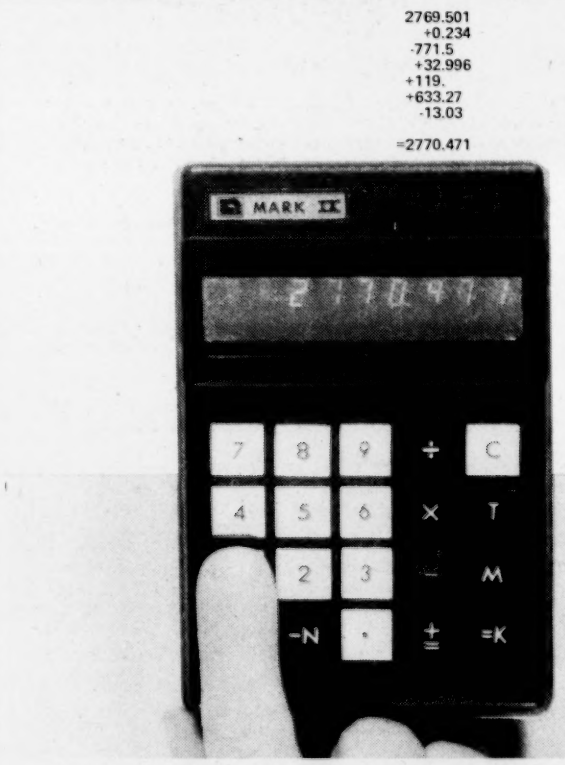
—Andrew Fluegelman

Walnut ink



dear friends,
i'd like to share a great (free) way to make a real nice drawing ink. (it feels better when you make it for yourself)
get a big pot and about cover the bottom with the outer skins (the soft part not the shell) of black walnuts. fill with water and let it boil about 5 hours. adding water when it needs it. keep cooking it until it get to the tone you want. then take out the chunks of skins and you have ink. also add a few drops of formaldihide (i know i didnt spell that right but the preserving stuff) so it wont go bad.
its real nice ink like what im writing with now.

love,
debi
ridge, md



Pocket Calculator Writer?

While watching the mice run around Stewart's lush, cardboard-lined unsold-CQ-walled office last week, it flashed on us that the world needs some new models of electronic calculators. How about one that prints out results directly onto ledger or tracing paper? Move the calculator over the paper to a dimension line, say, do the fingerwork, press the print button, and get an instant downward-stamped printout. Or what about a pocket electronic calculator that gives out the answer both as a visual display and an audio message? *Squeak . . . buzz. . . .* "This is Hal. Your answer is 3.695×10^{-3}. Thank you for pressing my buttons." Or what about a calculator that responds with a visual display and a Braille "feel-out"? Punch the keys, move your hand to a readout bar and sense the answer with your fingertips? That way you wouldn't have to move your eyes from the worksheet to the calculator and back. H-P, are you there?

—Chuck Missar

Don Britton electronic plans

I am enclosing a catalog of electronic construction plans of all sorts of devices which can be built by amateurs. The plans are workable, detailed and although some of the claims seem outrageous, they do work provided you take care and approach the construction in a conscientious manner. They're not easy, but nothing worthwhile is. Some of these devices are quite useful such as the portable radio phone. Others appeal to the sneaky low-down bastard in all of us.

–Wolfgang Drohsler

Catalog

from:
Don Britton Enterprises
PO Drawer G
Waikiki, Hawaii 96815

PHONEVISION; again you can be ahead of Tel Co. See the party to whom you are speaking. Simple device attaches to the telephone line and transmitts the picture along with your conversation. Utilizes new slow scan technique but yields better than newspaper quality pictures. Is used with a standard scan TV Camera and Receiver. Plan set J6 F50—$6.50.

•

VOICE TYPEWRITER; dictate directly to this very special unit. Have you ever wanted to simplify the writing of letters by dictating directly to a very special typewriter? This construction project conceptually describes such a device. Complete information is given on the Buffer, Voice Encoder, and Encoder to Typewriter Translator. The voice encoder dissects and analyses each word spoken and converts the results to a digital code, which in turn is compared with an Electronic Library which instructs the typewriter to type the correct word. Of all of the Don Britton projects, this is probably the most interesting and challenging. Order plan set S6C5—$6.50.

•

DYNAMITES LISTENING DEVICES; a great countermeasures device. This silent sentinal james listening devices. Turn it on in a conference room and all microphones will be jammed jammed. No sound can get thru to Electronic Eavesdroppers. Cannot be used while operating a telephone or with hearing aids. This is a brand new invention not in use anywhere else in the world. Order plan set SI11S5—$11.50.

Their gentle voices

Dear Felicia,

I don't have much to do on this new job yet, so today seems like a good day to write you about the letter "L" as a consideration in the study of Southern linguistics. People who say Southerners have no use for "Rs" have not been paying attention to "Ls".

First, there are the Ls that are left out in the middle of words. Such as:
Ozemobile (Ozemobile 98)
Fim (get it for your camera)
Gof (the game of gof)
Sef (a sef hep program)
Hep (Hep your sef)
Sivver (sivver and gold)
Civeeyan (anyone who's not in the mitary)
Mitary (the opposite of civeeyan)
Wayums (a family name, like Andy Wayums)
Guf (the name of a once popular gas station)
Bote (it goes into a nut, as in nuts and botes)
Cote (a young horse and a drink: Cote 45)
Tweve (the number of persons on a jury)
Abum (what Porter Waggoner makes)
Bahm ("There's a Bahm Over Gilead")
Damation (a firehouse dog with spots)
Scap (the skin on your head. Doctors use a scapel)
Voteswagen (the famous German car)
Bub (a hundred watt bub . . . my personal favorite)
DeKab (a county in Alabama named for a famous Fort Payne theater)
Baw (no hair, like a baw headed man)
Raf (a guy's name, like Raf Edwards)
Saut (a popular condiment)
Wauk (take a wauk)
Affa (a Greek letter used a lot by college kid fraternties)
Cavery (the hill where Moses was crucified for our sins)
Meyon (a thousand thousands)
Whosale (opposite of retail)

I'm sure you can add to the list. There is also a group of words, which I haven't fully looked into, in which the offending Ls are left off the end. Thus:
Coo (He thinks he's coo, don't he)
Schoo (Where you go t'schoo?)
Poo (as in swimmin' poo)

Now if you wonder where these Ls go after they are left out, I have found some of their hideouts. One is the word "arrel" used in the famous rhyme, "I shot an arrel in the air." Another is in "sparrel". That's like, "I shot an arrel at a sparrel."

Felicia, I'm proud to be a good o boy, and I hope you are too.

Love,
Tom
[Sent by Stephanie Mills]

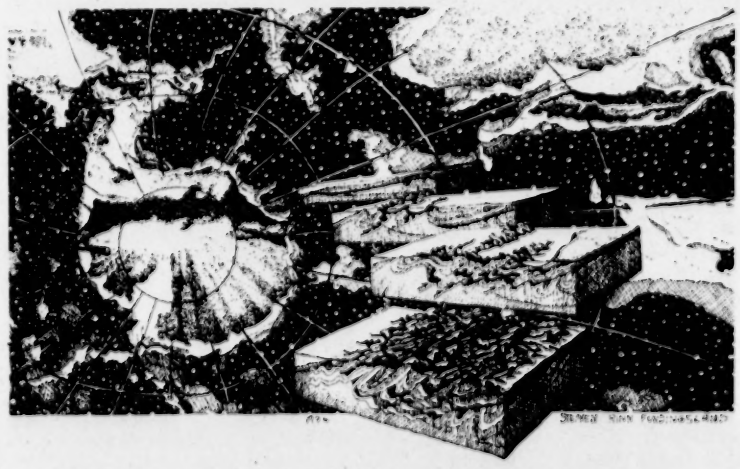
Quickies

• **Large Type Books in Print**, *$12.50 from Bowker, 1180 Ave. of the Americas, NY 10036 or your local library. "Surely some whole-earthers have friends or relations whose minds focus better than their eyes but can't find enough input," says Rick Wannal, Terra Facts, Freeport, Texas.*

• **Astrology works/doesn't work**. *A report in Sep 26 74* New Scientist *says that a Dr. Michael Ganquelin in Paris, after exhaustive research, found "significant correlations between the planets that were rising or culminating at the hour and day people were born and their profession in later life." However these correlations do not align with those predicted by classical astrology. Granquelin's book* Cosmic Influences on Human Behavior *now available from Garnstone Press in France.*

• **The Washington Spectator** *is Tristram Coffin's new paper. He's left* Washington Watch *(EPILOG p. 621) which he started in 1968 because of a beef with the publisher he hired. As for the* Spectator, *"we'll begin Jan. 15, same format, same bite, same editor, $10/yr for charter subscriptions, P.O. Box 1750, Annapolis, MD 21404."*

• **Michael McClure**, *poet-playright of* Gorf *(Summer 74 CQ), got a $8500 grant from Rockefeller to work with American Conservatory Theater in San Francisco making plays he says will be biological.*



"Birth of the Atlantic"– Criss-Cross Communications

• **Criss-Cross Communications**, *a new art-plus magazine by the founders of Drop City, Colorado, comes recommended by Steve Baer as seminal work. $10/yr (quarterly), Route 4, Box 150A, Blackhawk, CO 80422.*

–SB

Learning

3-D Universe

Dear Mr. Brand,

Concerning: "Cosmos, the Medieval," in your summer issue: Did they really experience the cosmos that way? Or is it just a play of Lewis' fancy?

I've been interested in much the same thing: astronomy has shown us that the stars are very far away, and they surround the earth in 3 dimensions, except I continue to experience them as "points of light in the sky." They might as well be glued to an acrylic sphere 20 miles away.

I've had occasional 3-d flashes, but only when stoned, and only when I wasn't trying to have a 3-d flash. One evening, stoned, I looked at the zodiacal light, and rather than being "a cone of light in the sky," it became a mass of dust and gas encircling the sun. Its size frightened me so much that a circuit breaker in my mind blew, and the zodiacal light returned to normal within a second. Even so, I was so shook up that I had to go back inside the house, to the comfort of a human-sized space.

Have any of your readers experienced the Milky Way in 3-d? Did they survive? Did it affect them permanently?

My wife says she can have 3-d flashes at will, when the mood is right. However, in asking around, I gather that such experiences are rare. This points out a dilemma which is common to all science, not just astronomy: little emphasis has been placed on how scientific knowledge can affect our experience of the universe. Instead, the knowledge is packed away in some abstract corner, isn't systematically integrated into our lives, and we remain, in many important respects, medieval peasants, only now we're smart.

The integration process completes a cycle: observe the universe, abstract knowledge from the observations, integrate the knowledge into our experience, observe the universe again . . . only now it's a WHOLE NEW UNIVERSE. This is an exciting point they never told me at the university, since they concentrated exclusively on the first half of the cycle.

But I imagine you Californians have been transforming the universe for some time now. When are you going to do an article on it? Do any of your readers have 3-d flashes? Do they have any ideas about how to have them at will? And how about experiencing fire as an oxidation process?

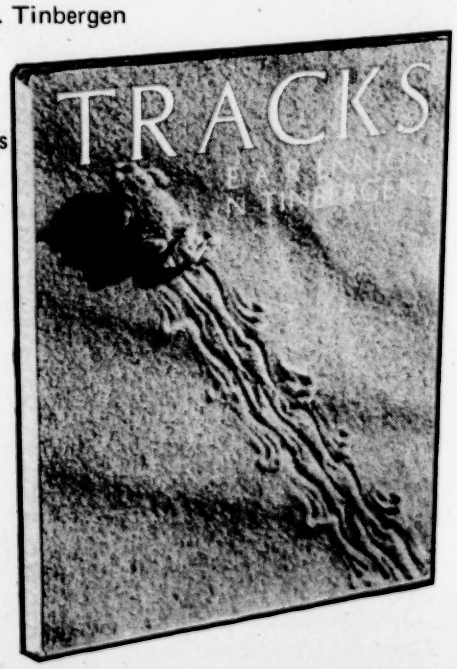
Gordon Solberg
Rimfire Ranch
Radium Springs, New Mexico

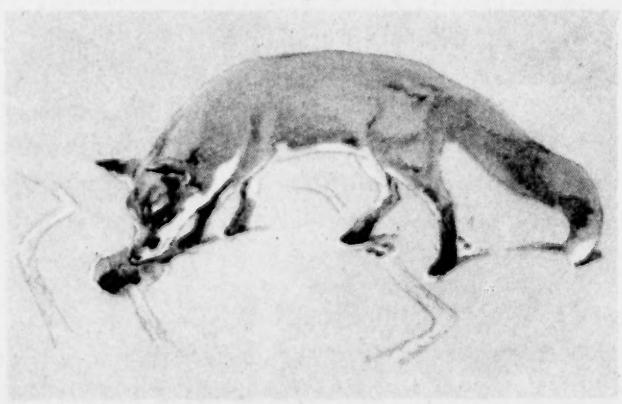
Tracks

I think this is Tinbergen's most beautiful book and it's nice to know that a man who gets a Nobel Prize for finding out whether seagulls will cherish square eggs also sees beauty and can catch it with a camera. This photographing of animal tracks on sand dunes in the very early morning is a sort of natural history that many could attempt and is entirely absorbing. It is Tinbergen who went out and photographed the traces of what the foxes did to the seagulls and the tracks of a kestrel hawk playing at capturing a pinecone and the natterjack toad's nocturnal travels. Ennion has made these pictures intelligible with marginal drawings of the action as it occurred.

—Gregory Bateson

Tracks
E. A. R. Ennion and N. Tinbergen
1968; 63pp.
$7.50 postpaid
from:
Oxford University Press
16-00 Pollitt Drive
Fair Lawn, NJ 07410
or Whole Earth





An incident clearly described after a calm June night. A Natterjack, quitting its day-hole in the evening, shambling away only half-awake, has left a lazy, dragging track. Later, a Fox, chancing upon the empty hole, slowed down and sniffed at it before trotting on.

BY **KELLY YEATON**

Illustrations by Steamboat

Kelly Yeaton, 64, teaches drama at Pennsylvania State University, heads the Experimental Theater there, and is considered an authority on the development and theory of American arena theaters. A summary of Yeaton's "The Great Gaming-House" appeared in the **Tulane Drama Review** *in 1965, but this is the first full publication.*

The vision transforms Theater, or transcends it. Either way, it's time it became a real place. Professor Yeaton commented in a letter, "I think it might well replace colleges. . . ."

—SB

The Image

In my dream, everyone knew that a crew of strangers were in town. They had come to construct and operate a new kind of recreation: a great fun-house for adults, something like the continuous shows of the Worlds' Fairs, or like Disneyland. But a much more sinister aura surrounded the project, an atmosphere of carnivals, circuses, side-shows, nightclubs and Genet's Balcony. The public "front" was disarming. Here was a place where one could buy a little harmless but adult adventure, an answer to Tom's complaint in The Glass Menagerie, "a compensation for lives that passed like mine, without change or adventure."

A great empty warehouse on the waterfront had been rented. In it laborers were hard at work building a mysterious labyrinth of rooms, mirrors, doors and passages. When The Great Gaming-House finally opened its doors to the public we would be able to pay our fee and walk into the maze to meet our adventure. But what was inside? The public had only been told that there would be choices to make, obstacles to overcome, games to play, puzzles to solve and, of course, other players. But the nature of the games and choices was shrouded in mystery and subject to continual change without notice. But it was all to be synthetic and symbolic, naturally, and therefore perfectly safe and legitimate.

Still the sinister atmosphere persisted. Rumors suggested that concealed within these symbolic games there were also some real games. Perhaps if one could pass the scrutiny of the gypsy fortuneteller, if one played one's cards right and chose the proper turnings, then other doors might open and real adventures

beckon. Gamblers might find games where the stakes were actual and substantial. Men might find the hostesses more "accessible." The tinsel and gaudy paint of the carnival might be left behind as one moved into an inner world of actual luxury, real hazard, danger and true adventure. Yet, of course, the strangers themselves may have instigated the rumor, merely to stimulate business?

Throughout the project there seemed to be similar inseparable mixtures of the real and the illusory. Because the games were supposed to be purely synthetic and the gambling counters supposed to be worthless, it was popularly assumed that games might be "fixed." For entertainment purposes there might be "shills" playing for the house, to keep the action moving. But it was also uncomfortably plain that there was no way of knowing.

To the sophisticated, it was obvious that The Great Gaming-House could easily be an innocent-looking "front" for confidence games of all sorts, from the little carnival "short cons" to the elaborate plots associated with the "big stores" of Miami, Las Vegas or Chicago. No doubt it would be an easy task to separate the greedy "marks" from the steady flow of mere entertainment seekers. Suckers could be steered to outside games, or even lured further into the "real" world that might exist inside the House, there to play out the inevitable sequence of the confidence game. So it might be dangerous? Would this keep anyone away? No, it would probably attract as many as it would frighten. How many of us would imagine ourselves as suckers? There is a large supply of suckers or "marks," as Barnum noted. The symptoms of a "mark" are that he has money, thinks he is smart, can be tempted into something a little dishonest and imagines himself to be a good judge of character. But we would be protected by the basic Rule of the House, that one could always refuse to play.

Even the knowledge that some of the players might be employed by the House has that double-edged feeling relating to illusion and reality. Suppose I meet an attractive neighbor in one of the Games. Does her familiar face guarantee that she is not a House player? Not at all, she may be a volunteer enlisted by the management. There are gifted amateurs in every game. To me, of course, she will say she is only another player, but to the proper stranger—— who knows? Thus, the ambiguity of reality and illusion within the Gaming-House might extend itself into the life of the town. Secret adventurers might come to know each other. Dreams shared inside the Gaming-House might come to spread into the world outside. Threat and promise, indeed! Any channel that leads from dreams to life is frightening. Most of us have a few nightmares.

The Project

One of the disturbing qualities of the image of the Great Gaming-House, dream-born as it was, is its obvious possibility. It can be done. With adequate funds and facilities it could be built and operated. In some parts of the world, such as Tiajuana, even the sinister and secret portions might be legal. The realization brings with it an instant thrill and a sense of fear. It could be as big as Disneyland, or as small as a travelling carnival. It might be set up in a loft or empty house, a few units at a time like Happenings, or rigged to operate as a weekend party on some estate. For the Gaming-House is simply a sequence of situations which call for decisions or solutions arrived at through skill, intuition or luck. The sequence implies a variety of "tests" to be encountered by the individual player who must take each situation as he finds it and deal with it as best he can. That's life, isn't it?

The Model

Since life viewed in retrospect seems to be such a sequence of problems and situations, it should be possible to design an entertainment in which each individual player might assess himself, and others, through the behavior exhibited in games. Can one really make a symbolic model of the world in the form of a Gaming-House? It is as impossible to solve such a world-metaphor as it is to leave it alone. The mind clings to it, returns to it and can't shut off at night. The following "model" developed from this type of preseverance, but the author claims no sort of finality for it. It is presented here merely because it is more specific and concrete than the image and, therefore, easier to think about and to discuss. This particular model, Mark I, would take about a city block, but could easily be expanded to cover a small island, or contracted to a few floors of a large hotel.

Some Operating Principles

1. Ruling principle: "There is no guarantee and not much justice. One must accept chance as an operative element in all games, as in life, and we can never know whether it is truly chance or not."

2. All play is strictly voluntary and no one is compelled to play any game. (This is not true in life.) There is no prejudice against the refusal of a game. A refusal leads only to different games, anyway.

3. On the other hand, one cannot stop indefinitely. To refuse one route means to accept the alternative, but if all routes are refused, one leaves the House. (Persistent refusal takes one out of play, as in life.)

4. If cheating is exposed, the cheater loses the bet, but is not otherwise penalized. If the House is caught cheating, it pays a bonus. There is to be no cheating by the House in the Gambling Rooms.

5. Illusions and problems of perception are a vital part of the entire operation. These are at their peak in the Fun House and the mirror mazes. They are planned to be disturbing and dizzying, to loosen our mental grip on preconceptions and our sense of reality. Caillois would relate this section to the game element he calls vertigo, so much a part of carnival machines, the carousel, the rollercoaster and the Tunnel of Love, as well as to the childhood games of Blind-man's buff and snap-the-whip.

6. The use of masks and disguises causes the loss of identity by shifting the role and the self-image, and by preventing the natural feedback from others which provides us with identity reinforcement. It permits contacts with others to be fairly free of preconceptions of identity or status. Aliases are normal in the House, so much so that even a person using his true name would probably not be accepted at face value.

7. House personnel are distinguished only by a few minor markings, but should carry identification to show if challenged.

8. All the House tries to provide is adventure within the limits of the player's willingness, nerve and ability. Many of the adventures are largely symbolic, but the threat and promise of reality should be constantly present. It is probable that the best way of playing either real or symbolic games will be found to be the same.

9. The problems suggested in Game Theory of coalitions (teaming up to control a player or to beat the House) and of groups (who play as a single unit) will require further study and resolution, no doubt. At first it will be enough to plan the House for individual games. Probably, in the last analysis, all such combinations must be considered temporary, and we must learn to play as if we were alone.

10. The nature and conventions of the two-person duels will also require further study, particularly the official ones on which spectator bets may be placed and on which a bonus is paid by the House to the winner. For example, a Chance Duel may be coin-matching, or scissors-paper-stone. The nature of the challenges should

usually be left to the initiative of the individuals. A challenge includes the game and weapons. It is not operative until the stakes and rules are agreed upon. Challenges may be declined without prejudice.

11. Control corridors, one-way mirrors, microphones and a thorough intercom system must be assumed to be necessary, but should be kept as unobtrusive as possible. Awareness of observation tends to inhibit spontaneity.

The Sequence

Area 1. Entrance interviews and fortune-telling, using gypsy Tarot cards and the Chinese I Ching.

Area 2. Admissions office. Rules of the House explained. Contracts with the House agreed upon. Counters issued.

Area 3. Masking, costuming, disguising, coaching. This is a separate department to which the player may return at any time. It is an identity shifting service, with a staff of make-up experts, costumieres and acting coaches. May be skipped at will.

Area 4. The Green Lounge. This is a large holding pool in which the new identity may be tested and the general situation may be explored. Duels, spy games, party games and icebreakers are conducted here.

Area 5. The Hundred Gates. After the congenial party atmosphere of the Green Lounge, the player faces an area of screens and corridors, a maze in which each turning is marked with some kind of choice to make. Will you turn toward red or green, men or women, rough or smooth? These cues may be verbal, pictorial, tactile, kinaesthetic or aural. Probably they can be changed easily to provide a different kind of sorting at any time. Will you turn toward the Mona Lisa or the pin-up girl, Beethoven or the Beatles, uphill or down, 69 or 96, through the window or under the table, Bingo or craps? Essentially this area operates like a walk-through computer, screening and sorting the players. The player emerges from the Hundred Gates into various places. With him are others who have made similar choices.

Area 6. The Obstacle Courses. Some of these are physical, some tests of skill. The first courses are frank and open enough, but the later ones involve trickery. One becomes aware of trying to outwit the designer and the other players. The House may complicate the obstacle courses by introducing arbitrary elements of chance.

Area 8. The Elite Lounges. These comprise a Second Level holding pool of clients. Various kinds of

people have been sorted out by the previous Areas into groups with similarities. Each group has won admittance to a particular Lounge by the sequence of their previous choices, successes and failures. Here the inner likenesses should make possible the playing of various Theatre Games, social games, and the enactment of Happenings with much more interesting results than would have been possible at the unsorted First Level in the Green Lounge. At least the clients will now have common experiences to talk about among themselves.

Area 9. The Gambling Rooms. With the counters each player has managed to acquire or retain, he may play the tables at will. Whether or not the counters are actually worthless may depend upon the player's contract with the House and the legality of gambling in the actual location.

Area 10. Restaurant and Bar.

Area 11. Carnival Ballroom and Theatre. Masked Ball in the evening. Other activities of a theatrical nature, probably.

Area 12. Garden, Patio, Swimming Pool. One crosses this area on leaving the Restaurant and Ballroom to return to the Hotel. A maze of hedges and trees might facilitate the breaking-off of relations between masked identities. "No one is compelled to play any game longer than he wishes."

Note: The Secret Third Level is not apparent on the ground-plan since it does not involve any separate area. Entrance to it may be granted in the Elite Lounges by cutting out the candidates and channeling them into other rooms at the Second Level. Various Secret Games may be played among the others without their awareness of it, as spies and lovers play their secret games in ordinary society.

The Form

The essential action-form dictated by the structure of The Gaming-House is quite familiar, a journey through a sequence of choices, situations, decisions, contests, puzzles, obstacles and games. The structure of the House controls the sequence in which these will be presented to the traveller. Each fork in the road leads to new situations and other choices, and these, in turn, lead to others. The walk-through shows of the World's Fairs permit only one sequence of events, the labyrinth has only one True Path, the cinema and movie have but one ending. Hamlet always dies. In the Gaming-House there are many roads and many endings. Most theatrical events provide only the illusion of suspense, in the Gaming-House the suspense is real.

In plays and films we, as audience, maintain a tenuous empathic identification with the heroes. In the Gaming-House we are our own heroes and adventurers. There is no aesthetic distance left, save insofar as we

may observe ourselves while playing, or from the realization that the games we play are only symbolic. The Monopoly player loses counters, not money; the symbolic duelist loses, rather than dies. (Theorists are welcome to debate the problem of the possibility of aesthetic distance between the facets of the self. Self-perception of this nature seems to be an element of Brechtian acting, of high-comedy acting, and was once specified by Ouspensky and Gurdjieff as an esoteric discipline. But here it is a mere philosophic digression.)

The structure of the Gaming-House can offer, as no theatrical form can, an experience tailored to the player's unique nature and demands, one that he chooses for himself, step by step. The pattern of his choices will inevitably reflect his personality, his skills, his daring, caution, and momentary moods. The Gaming-House might be as revealing as a Rohrschach test, or any method of projective analysis.

The apparent freedom of choice is also illusory, for all the alternatives are determined by the preset structure. With a given "setting" of the House only certain choices are offered the player, and the sequences are arranged so that strategies are clearly limited. Many of the situations permit only two or three choices, and perhaps, for many people only one of these will seem tolerable. Given a choice of doors-- one apparently leading to a beer-drinking poker party, the other to a tea-drinking bridge game-- would there really be a genuine choice for a person like Stanley Kowalski, or for one like Blanche DuBois?

Charles Morgan has defined illusion as "form in suspense" and has said that dramatic illusion implies that "while the drama moves a form is being fulfilled." Suzanne Langer, after quoting Morgan, adds that this form in suspense is "the illusion of Destiny itself that is given in drama." Does the sequence of choices available to the player in the Gaming-House provide this suggestion of Destiny and of an inevitable form being fulfilled? I think so, although it is not a fixed series of actions or words as in the structure of a play or film. I suggest that the form which is being fulfilled while it is being discovered is nothing less than a reflection of the player's character, his identity, his Self.

The feeling of familiarity with which we encounter the form of the Gaming-House is only momentarily surprising. It is the model of the games of life, in which every choice leads only to other choices, other rooms, other roads, and other players. This is the pattern of the Rites of Passage traditionally marking the transition of an individual from one social status to another-- birth, initiation, marriage, death. It is the pattern of progress in all the secret societies, the guilds, the sports, and the modern business Organization. Our movement through life seems marked by gates, by choices of roads and by irrevocable decisions. This is the pattern of Everyman, Pilgrim's Progress, Mother Courage, Camino Real, Virginia Woolf and Tiny Alice. It is the very shape of subjective experience, of life as we encounter it. The form is so familiar that it seems that we have always known it, yet I do not think we have. The Great Gaming-House is unlike most of the older "models"

of the world in its lack of concern for the True Path, the Right Way, the Middle Way or the Path of Salvation. The Gaming-House, like the world, offers many paths for many people. The Player may be very serious in trying to find the One True Way, but there is no guarantee that such a path exists.

The Themes

There are at least three primary themes. The first may be seen in the persistent confusing of the real with the illusory. Evreinoff, Pirandello, Shaw, Ionesco and Genet come immediately to mind. The theatre is an inevitable medium for discussing the confusions between reality and the symbol of reality, the face and the mask. In no other medium does the symbol, the actor, so closely resemble the thing symbolized, the character. Since the development of Realism and of the cinema has led to the type-casting of actors, the general ambiguity about actor and character has become widespread. In some modern sociology, human roles are taken as being the primary unit of social structure, displacing the human being himself. Genet suggests that these roles or functions actually are the dominant reality. In the Great Gaming-House there are innumerable devices challenging the ability of the player to distinguish reality from illusion, the person from the role, the actor from the mask. But here there is no stage to insulate him, no fixed script to be played out, no predetermined program.

A second theme lies in the game-form itself. Life may be played as a game, and games may be rehearsals for Life. In these games the symbolic form is quite similar to the form of reality, so much so that it is possible to test oneself with the symbolic form as a preparation for actuality. The O.S.S. used game forms and obstacle courses as training and assessment techniques during World War II. In those spy-training schools an important technique was to mix the artificial and the real, the rehearsal and the actual operations, so gradually that the agents were never entirely sure when supervision and control were being relinquished. Close control was followed by looser control, and that by mere observation, and then by full freedom of action. One might say that they were trained in a symbolic mode and that Reality was allowed to replace the Symbols until the agents responded to real events just as they had been trained to respond to the staged events. Flight simulators, war games and rehearsals of landing operations, all remind us that non-serious games may be symbolic forms which are useful in preparing us for actualities.

The third theme is that of chance. In the Gaming-House chance must be accepted as a vital factor. In many sports chance is minimized so that the result will be largely dependent upon skill, but in many other games (dice, bingo, roulette) skill is a negligible factor. Most games, like bridge and poker, involve both factors. But in the Great Gaming-House the acceptance of chance as a possibly decisive factor is complicated by the idea of a Management which may control the games under the disguise of chance. Paul Caillois calls attention to the casting of lots in primitive societies as a way of consulting an oracle. The person who wins the cast is looked upon as one favored by the gods. In the Gaming-House the Management seems to sit in the place of the gods, able to control the games at will through the manipulation of chance. And who is able to say whether or not the Game of Life is fixed?

The Potentials

Gaming-Houses have been operated here and there already, but the Great Gaming-House has never been attempted. What should the Great Gaming-House be? It should be an ultimate testing ground involving situations of all kinds. The nearest we may have come to such sequences have been devised by specialists from their partial insights. Religious disciplines, sports, academic life, criminal society, technical or social groups, all have requirements that must be passed before a stranger can be admitted to equality. Some are formal and specified, others are intangible and unspoken. But these represent only isolated facets of the total being. The Great Gaming-House ought to be a kind of testing of the total self, all of the self that can be brought into action with others. It should involve mental, physical and intuitive skills. It should make demands on the physical, intellectual, sensory, sexual and moral elements of a person. The techniques now being used in the choosing of spies, of executives, astronauts, doctors and presidents are often primitive compared to the kind of knowledge that might be available from the record of play in a Great Gaming-House.

Games and performances in controlled situations are not only tests, but are also rehearsals, methods of training. Skills are developed by constant play or repeated trials of specific tasks. The apprentice moves upward through journeyman status to that of a Master by his performance in a sequence of set tasks. The student progresses through courses, tasks, examinations, orals to his recognition as a scholar. Assessment and training are done simultaneously. Might the Great Gaming-House become an established institution comparable to the University? It seems entirely possible that such devices might serve as entertainment, training and assessment

in a genuinely new social function. The Master of Games might come to have more prestige than Olympic champions or the winners of Nobel prizes in narrower areas of specialization.

A few years of research and testing might develop a useful social institution which could begin to halt our present plunge toward specialization and the splitting of man into hundreds of different fractions. Games and performance situations insist upon the integrated man-in-action and, I think, can help mankind to put itself together again.

•

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Preface To The Entire History of Man

BY MY

Jimmy Jacobs taught me how to play handball. Jimmy was the world champion—— maybe the best player ever lived—— and I was just a beginner, but it was Jimmy's idea that I would take home with me what he taught me in New York, and pass it on. It was kind of a joke at first, me telling our best players how to play, but it finally sank in that I was only a bridge between them and the great Jimmy Jacobs and that was when they started to listen to what I had to say. Each time I'd come back from New York, they'd ask me what Jimmy said and I'd tell them. Mostly, Jimmy only told me one thing at a time. Play an hour and a half with the world champion and he'd only tell you one thing. A gem, but just one thing.

So I'd get back and they'd ask, what'd Jimmy say? and I'd tell them. What else did Jimmy say, they'd ask, hungry for more from the master. Pretty soon I began to develop a few theories of my own that I was tempted to preface with Jimmy said. It must have been so for Paul and John and the others, I imagine, but I like to think the temptation was resisted there too. Well, I don't see Jimmy Jacobs anymore, but I always remember how Jimmy used to think that one idea at a time was sufficient. And Jimmy was a hell of a teacher. . . .

My is the editor of **Observations from the Treadmill,** *RFD #1, Union, Maine 04862, a periodical consisting entirely of his own excellent journalism—— subscribers pay what it's worth to them. His book of the same title is available in paperback for $4.95 from Viking (EPILOG review, p. 680). Recently on a grant from POINT, my went to India; now a book on hunger and food is under way.*

—SB

THE ENTIRE HISTORY OF MAN

Why should I tell you everything, when
everything has been told and you
have done nothing?
No, I will tell you only
one thing.

But what shall it be?

Youth is not innocent.
Old Age is unwise.
Love corrupts.
Power weakens.
Victims rob.
Populists dictate.
Progress retards.
Virgins abort.
There is more than one Infinity.
And only ashes will rise up out of ashes.

But these do not diminish your insignificance.

I will tell you something.
Smile days. Sleep nights.
There is no Reason Why.

—my

Michael Scott

Dharma taking root in the (south) West

It is a commonplace that Tibetans and American Indians, particularly of the Southwest, are close. One can point to a basic earthy spirituality, out of which grows a ceremonial approach to the sacred, as well as a shared heritage of Shamanism. (Tibetan Buddhists made good use of Bön, the pre-Buddhist nature religion.) Not to mention the more obvious similarities of race, nomadic culture, decoration and art. Still, when all this has been sketched out there remains something more, a residue of intuition that there is something fundamentally in agreement between the two cultures.

This feeling might be merely the result of sentimentality, of a counterculture love for the exotic. But the recent first visits of the two spiritual leaders of the two oldest schools of Tibetan Buddhism convinces one that the bond is there.

Dudjom Rinpoche, Supreme Lama of the Nyingmapa (Ancient Ones, or Old Translation) Lineage left detailed plans for a stupa to be built in Santa Fe. It is, among other things, a time capsule that symbolizes the rooting of Dharma in the West. Almost as deep into the earth as above it, anchored by a sword, filled with offerings and messages symbolic of a kinship—— sutras and eagle feathers, arrowheads, Arizonan and Tibetan turquoise.

This particular stupa (chorten in Tibetan) was designed for the pacification of all hostility. Perhaps it prepared the way for the visit of the Gyalwa Karmapa, Yishin-Norbu (Wish-fulfilling Gem), the spiritual leader of the Kargyupa (The Whispered, or Continuing Word) Lineage, the second oldest Tibetan school. The Karmapa traveled across the country this fall, performing the Black Hat Ceremony, which confers the blessings of Avalokiteshvara, the Bodhisattva of Compassion. That part of his trip which took him through the Southwest, and his visit with the Hopi, is described here by Joshua Zim, one of the drivers.

Perhaps the slow and sure infiltration of Buddhism into America is yet another turn of the spiral of our own rediscovery of ourselves. Trungpa Rinpoche has called the image of Sitting Bull a true image of the Buddhist meditator. It makes sense. We go half way round the world to come home.

—Rick Fields

Magic. Magic so open, so flat-out visible it illuminates the entire situation, is the entire situation in its vividness. The particular quality of gold beaten thin and hand-polished over centuries. It radiates warmth. It lustres. Its richness is everywhere. We are moving in a caravan of eight or nine vehicles; His Holiness the Gyalwa Karmapa (Yishin-Norbu), ten monks, a nun, three translators, film and video crew, photographers, baggage carriers, drivers, assorted guides and friends, moving through southern Colorado to Aztec, New Mexico, and Canyon de Chelly, Arizona, on to the mesas of the Hopi, the stewards, the ancient ones, heart of this continent. Forgive my excess, but it actually happens: meeting of heartminds, Dharma taking root in the West. Exactly.

Detail: We are picnicking at Aztec, site of the Great Kiva. Blew it again; forgot the toothpicks. Yishin-Norbu's attendant picks up on this immediately, disappears momentarily behind a small bush. He returns with a toothpick, complete with handle, skilfully carved from a twig. He even seems a little embarrassed for us, our awkward and well-meaning attempts at serving.

Detail: Visit to the Denver Zoo. Yishin-Norbu is a collector of finches and canaries, and is overjoyed at finding a rare species at the Zoo. The curator is also overjoyed, and offers the bird as a gift. It travels in a small cage covered with white satin cloth, and the car radio is periodically turned on to accompany its singing. The twelve other birds travel with the monks. Yishin-Norbu is delighted to hear of St. Francis of Assisi, encouraged to find a Christian saint who preaches Dharma to the birds.

> *You might ask where this magical aspect comes from, how it comes to be? It is because there is a sense of tuning oneself into an entirely different way of thinking, as opposed to our ordinary way of thinking, samsaric way of thinking. We have decided to relate with the truth, the Dharma and decided to tune into it. And that tuning oneself into, committing oneself into that stream, that flow, means that one is automatically entered into some kind of spiritual power. Nothing particularly exciting or extraordinary, necessarily magical. But there is a sense of power and there is a sense of mystical energy, so to speak, that one is involved with. . . .*
>
> *—Chogyam Trungpa, Rinpoche*

Along the roadside through Keans Canyon we suddenly become aware of dead animals: birds, coyotes, dogs, skunks, cows. Desolation. Some elemental impoverishment, the mesas themselves like dry bones bleaching into nothing. Polacca. Someone drives off to find Chief Ned, head of the village. The stone houses view us impassively, the villagers slowly emerge from the stone houses to view us impassively

Vicki Hitchcock

Michael Scott

and yet they are clearly stunned, amazed by the spectacle of the Karmapa and his party. He is one of them, his monks have the look of the Hopi. It is the same people, one people. And the extraordinary presence of the Karmapa, the sense of his infinite richness, communicates itself to the villagers. He is one of them, it is the same people, one people, and yet there is in him nothing of their oppression, nothing of their harsh isolation and imprisonment. He is simply and visibly a spiritual monarch.

> *. . . the reason Dharma is regarded as sacred as opposed to other things, opposed to adharmas, is because its contents are outrageous in the way that the contents are in touch with the energy of the world, the cosmic flow, so to speak, of the world. So there is almost a magical element in that. And in fact the Dharma is not the Dharma particularly because it's so sensible and so true in the ordinary sense, therefore it is workable and it works. But there is that element of the magical quality of it. So the unconditioned truth like Dharma has extraordinary power in it.*
>
> *–Chogyam Trungpa, Rinpoche*

Detail: Yishin-Norbu presents a white scarf to Chief Ned, along with a Tibetan gift. Ned provides postcards of Walpi in return, passing them out to the entire party. Quite naturally, the Karmapa hands the card to his attendant, then immediately senses the possible misunderstanding of that gesture and retrieves the postcard. This sensitivity is everywhere evident, particularly in relation to people. In fact, it becomes obvious as the journey unfolds that while Yishin-Norbu appreciates physical beauty, sacred history, and so forth, people are what really move him. He forgets the Grand Canyon completely in his total response to a tourist's approach. And the mutual spark is incredible to witness.

After a tour of the village, Ned remarks that there's been no rain all summer. This is a hard thing to say. The Hopis are known to have "power." And their ceremonialism is an instrument for bringing the universe into harmony. But there has been no rain. The uncompromising fact. We are all of us frozen in that simple statement, totally naked, totally hopeless moment. The Karmapa's face seems beyond mere sympathy, it seems beyond pain, mirroring the starkness of Hopi life and the precariousness of their present condition. The monks have been invited to descend into the kiva. The Karmapa sits beside the entrance, his face shielded from the intense sun by a wine-red shawl held by two monks. He begins chanting, and as the monks ascend from the kiva they join him. There is nothing secretive, nothing held back, an unpremeditated action with tremendous force. The chant plants the seed of the Dharma. Rainclouds begin to gather in the sky. It is simple and direct, and the Hopis recognize the event, recognize the power and the source of the power. He is one of them, it is the same people, one people, long ago separated and today somehow together again. Soon after the chanting we leave, lingering of course for photographs, driving Ned and his wife to their home below the mesa. Ned's voice in the wind, still: "Sure happy somebody listen to us. Sure happy some people that way come here today. . . ."

Later, settled into the Hopi Cultural Center, we prepare for some informal meetings with other Hopis. White Bear, co-author (with Frank Waters) of **Book of the Hopi,** arrives with his wife. They meet Yishin-Norbu and White Bear begins describing the desolate state which precedes the destruction of the world according to the Hopi prophecy when the sky turns abruptly black, thunderous, lightning dancing all around the grey mesas and rain, rain bursts from the swollen clouds, rain on our upturned faces, the monks are laughing, rain on the dusty leaves of stunted trees, on the parched earthskin, on our face. Everyone is laughing. The Hopis know. It is not some mumbo-jumbo circus show; it is the mystical energy, the elements of the universe relaxing into place at this fantastic meeting. So it rains. The seed is being cared for, at every level.

And now there is unexpectedly a shift in Yishin-Norbu's presence, as if the rain has opened a door to another realm. He announces he will perform a special ceremony after dinner, a *wong* of Avalokiteshvara, empowerment of compassion. In the conference room. Immediately the monks begin unpacking their suitcases filled with rich brocades and ritual objects. They create a throne, a shrine, a space that catches and reflects the energy of the world. And people begin to gather: tourists on the guided tour looking for something exotic to fill the hours before bed; cowboys who've heard some Tee-betans are around; longhairs out to get stoned; local spiritualists; and the Hopi. They come in the rain, driving through the fresh mud, bring fried bread and *piki.* Offerings.

Somewhere I am told the Hopi prophecy speaks of a man coming from the East, wearing a red hat, at the turning of the world. Somewhere, I am told, Tibetan scripture speaks of the Dharma taking root in the land of the red-faced men. Exactly.

The ceremony begins. Yishin-Norbu, the Black Hat Karmapa is wearing a red hat, the Hopis are mainly in the back of the room, watching carefully. Some have tears in their eyes. Tiny Princess Caroline of Hotavilla recognizes him. The room is filled with warmth, golden. The whole thing is apparent, nothing hidden. No one misses it, not even the middle-aged Iowa woman with blue tint in her hair whose knees and ankles ache from sitting on the floor. Open communication of energy.

Afterwards, we are all invited to pass before Yishin-Norbu to receive his blessing. The Hopis allow the Anglos to go first, then walk respectfully past. Many of them are crying softly, or laughing. They carry their infant children. Later, the monks remark that while the Anglos were somewhat hesitant in deciding how to bow, how to receive the blessing and so on, when the Hopis approached it was as if they had never left Tibet. Their movements were thoroughly devotional, thoroughly natural. Body, speech, and mind. One way.

Earlier on this journey, when meeting with some of Trungpa Rinpoche's students, Yishin-Norbu laughed and commented, "I've got no particular miracle to perform for you."

Nothing necessarily magical. Rebirth, and a sense of extraordinary possibility.

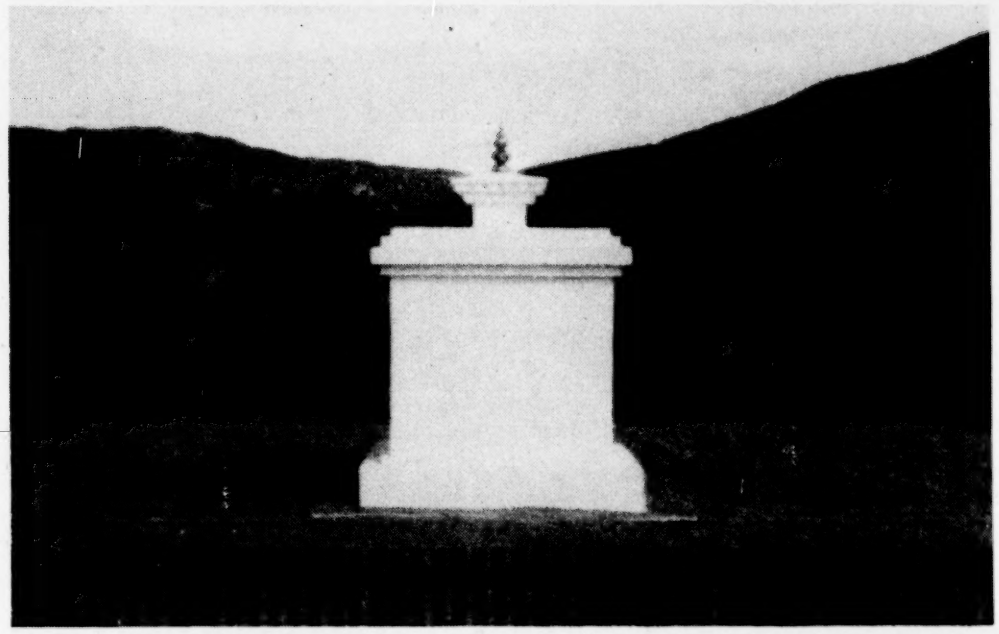
One version of one event; no doubt you'll hear another.

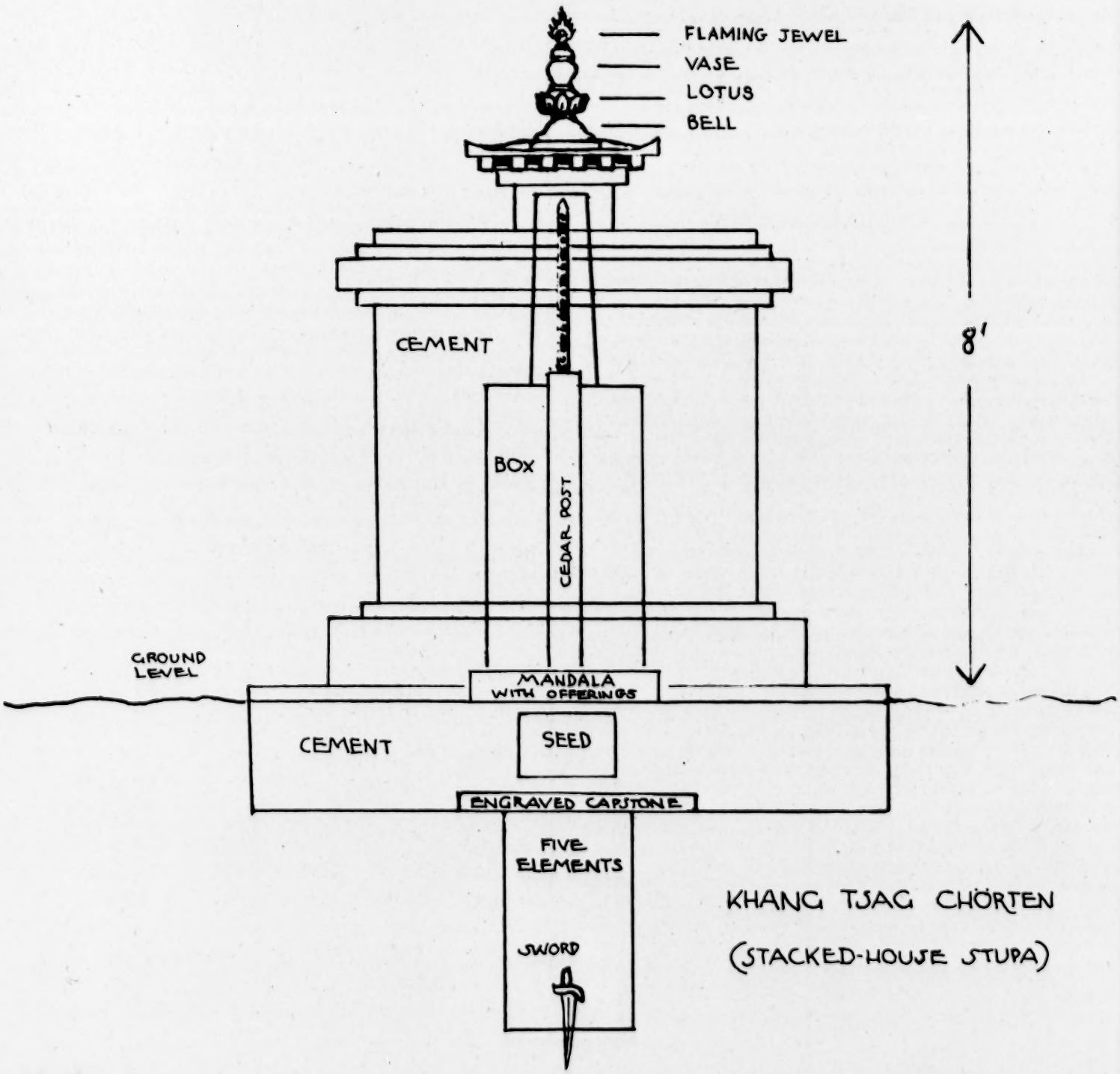
Gratefully,

Joshua Zim

•

Charles Van Maanen





KHANG TSAG CHÖRTEN

(STACKED-HOUSE STUPA)

New Mexico Chörten

(When the Buddha died, his followers took his cremated remains and some objects used by him during his life time, and placed them in commemorative monuments called Stupas. These monuments were not merely reliquary shrines, but were considered to embody the very body of the Buddha himself. Thus they localized in time and space, the all pervading reality of the enlightened mind, manifested by Shakyamuni during his life time. For this reason, stupas have always been regarded with great devotion by Buddhists.)

Khang-Tsag Chörten (Stacked House Stupa) was erected in Santa Fe through the inspiration and protection of His Holiness Jigdral Yeshe Dorje Dudjom Rinpoche, Supreme Lama of the Nyingmapa Lineage, in remembrance of his journey to the United States in 1972; the formalities of construction were under the direct supervision of the Ven. DroDrup Chen Rinpoche of the Namgyal Institute of Tibetology, who performed the consecration on the new moon of October 1973; it was dedicated to the welfare and happiness of all sentient beings and ceremonially blessed by the Ven. Chogyam Trungpa Rinpoche in April 1974.

Topes, Pagodas, Stupas, and Chortens. Elaborated reliquaries peculiar to Buddhist tradition. Generally circumambulated clockwise. Activity principal varies with the Chorten, this one designed for the pacification of all hostility. External architecture used 7 tons of cement, stone and concrete block. Aligned in the four cardinal directions, the interior orientation is to the South. Site was purified, aligned, excavated. Triangular pit excavated within the square. Sword into the earth at bottom. Pit ceremonially filled with five elements, capped with a flagstone incised with crossed Vajras. At next level a large clay crock in a wooden box containing a seed offering: white rice from Darjeeling, brown rice, wild rice, winter wheat, beans, oats, sesame, squash seed, sunflower seed, poppy, cardamon, barley, rye, gramma grass, blue corn from Hopi, yellow corn from altar of the sacred cave at So Pema, Rewalsar, India. At next level is mandala of Samantabhadra with traditional offerings: barley flour cones, butter lamps, drinking water, washing water, flowers, incense, perfume and food. Also salt, eagle feathers, old pueblo shards, arrowheads, sacred cactus, ceremonial drum, gold, silver, iron, copper, tin, bronze, brass, meteorite fragments, amrita, saffron, cinnamon, cloves, red and white ginseng, sandalwood, cretaceous fossils, marble fragment from the Acropolis, glass from the bottom of local glassblower's kiln, small emerald, diamond, natural pearl, lapis lazuli, crystal, Arizonan and Tibetan turquoise, coral, amber, and obsidian from local mountain. All sealed in wooden box, wrapped in red silk and sewn with threads of the five colors. Next level is tall square box with cedar pole in center to touch the earth through a hole in bottom. Wrapped clockwise around the pole 300,000 images of the Lotus Born Padmasambhava and 1,100,000 written repetitions of the Mahamantra Om Ah Hum Vajra Guru Padme Siddhi Hum. This covered with protective wrapping and fitted with red silk sleeve and tied up in ascending spiral of five ribbons: blue, white, red, yellow, green, so that only tip of cedar pole protruded at top. Hanging on inside of box are block print of Avalokitesvara, painting of Tara, thangka of Vajrasattva, and prayer flag of sacred horse. At the bottom of box are small clay images, vajra & bell, conglomerate of earths collected by various lamas during fifty years of pilgrimages, more rice and incense, texts of Hridaya Prajnaparamita Sutra, Vajracheddika Sutra, Lankavatara Sutra (English), Guhyasamaja Tantra (Sanskrit), Hevajra Tantra (Tibetan), Sadhana of Mandarava, Guru Rinpoche (Tibetan, gold ink on black leather paper), Dudjom Rinpoche's History of Buddhism. Remaining space packed with boughs of Pinon, Juniper, Cedar and Spruce. Box sealed and only tip of cedar pole emerging. Next (top) level: specially carved wood rod, four sided with a pyramidal peak and painted red affixed to cedar post. On south side of rod the Tibetan letters Om Ah Hum So Ha were painted in gold ink from top to bottom. Various small relics were wrapped in silk and tied to each of the letters. A tiny bone relic attributed to Kasyapa is tied to the syllable AH. Atoms from a Buddha Tooth Relic are attached to the syllable OM, which is approximately at the height of a person's forehead. The entire rod was then wrapped many times in red silk and sewn tight with the threads of five colors and spiralled with silk ribbons in the five colors and knotted at the very tip. A small silver Buddha displaying Dharmacakra Mudra was placed at the foot of the staff. The whole in a very narrow tall box which was then sealed. Outside the box, imbedded in the cement around its topmost point is a corona of turquoises and eagle feathers. The cement work and modeling are completed and the outside walls plastered smooth. A bronze fineal in the shape of a bell, surmounted by a lotus, surmounted by a vase, surmounted by a flaming jewel, was placed at the crest of the Chorten.

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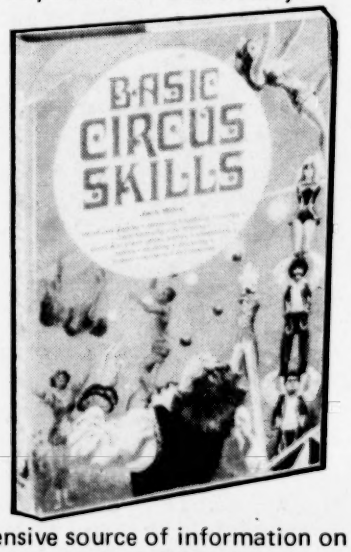
Box 428, Sausalito, California 94965

Basic Circus Skills

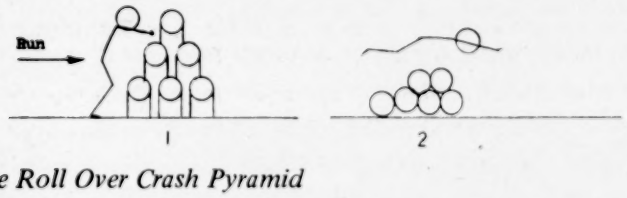
To do the impossible requires practice. Start early.

—SB

Basic Circus Skills
Jack Wiley
1974; 221pp.
$6.95 postpaid
from:
Stackpole Books
Harrisburg, PA 17105
or Whole Earth



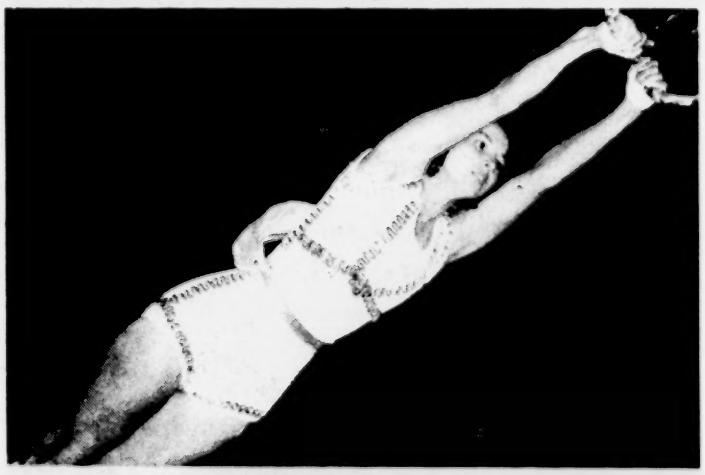
This book is the first comprehensive source of information on basic circus skills. In the following chapters the basics of a number of circus activities are covered, each leading up to the point where a basic amateur act can be performed. Also covered are mechanics, history, where to buy and how to make circus equipment, how to form a circus club, and how to organize, promote, and stage amateur circuses.



Dive Roll Over Crash Pyramid

Form a pyramid, as shown (the techniques for doing this are covered in Chapter 12). Tumbler who can do best dive roll runs toward pyramid. Just before take-off for dive roll (on signal from bottom man on side of pyramid of approach for dive roll), everyone in the pyramid straightens out, extending arms forward and legs backward. Everyone must do this at the same time for the best effect. The dive roll is done over the "crashed" pyramid.

Once the timing is worked out so that the pyramid crashes at the last instant, just when the dive roll is started, you will have a stunt that works well in shows.



Basic balance.

Parallel stance.

Juggling for Health

Hello—

At last you're back. Particularly the supplement. It had the feeling of town meeting about it or a central clearing house for our raps & crazies. As they say we need you now more than ever.

Here's some stuff for the Epilog or the CQ or wherever it fits.

With all the shit presently flying I've found juggling to be a sport/meditation-in-action/training superbly suited for the balancing act & juggling of energies required for staying aloft. When I juggle I am either focused & centered or I drop me balls. Simple as that. Instant bio-feedback. If I'm ON I can step back and watch my hands put out continuing displays of patterns & form change.

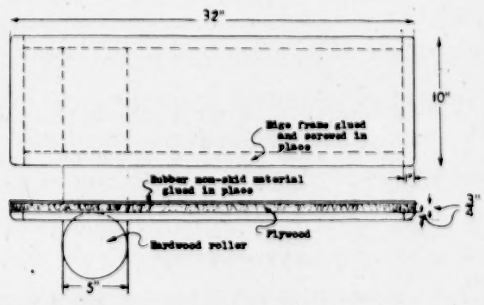
All of which is good practice for what for me is the real high of juggling—— doing passes with a friend or friends. Now there are 6 balls in front of you instead of 3. One must lock into the other person's timing & flow. At which point you sort of disappear and as long as you don't stop to think how it happens the patterns just continue to unfold effortlessly. If you ever get a chance to see 4 people juggling 12 clubs (the San Francisco Mime Troupe are good at this) its a real eye blow. The four clubs in mid-air get replaced so fast that it soon appears to be the same 4 hovering without touching.

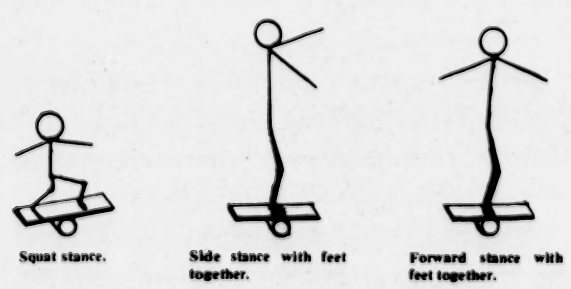
The best book out is **The Juggling Book** by Carlo (Random House V956 $2.95). Though I've never yet met anyone who learned from a book, this is certainly a good supplement to finding a patient friend who can show you the rudiments. It should only take you 30 minutes to an hour at the beach or on a large grassy area (saves on furniture) to get started. And if you don't know anyone who juggles Carlo's book seems lucid & thorough enough to do the trick. There's a wealth of material here, some nice advanced stunts—— the progression from 3 to 4 ball juggling is clear & logical—— and the emphasis on inner states & mind-set is right on. My only complaint is not enough pitchas.

Best balls to use are lacrosse balls. These are hard to find outside of New England, Baltimore or Canada. Probably can order them from Gerry Cosby, 825 - 8th Ave., N.Y. City—— run about $1.00-$1.25 each. They are worth having if you become serious about your juggling—— otherwise any toy store will sell nice, soft colorful rubber balls the size of baseballs and these are preferable to start with.

Juggling is such a lovely, delicate sport. And a great way to warm up & get your timing together if you are a musician. Which is my trade.

—Jon Seoville
Santa Cruz, CA





Squat stance.

Side stance with feet together.

Forward stance with feet together.

Telephone Classroom

Tom Roberts sent this item from Gainesville, Florida. Considering the deadliness of most classes, and the energy and dollar cost of transporting lecturers, we have here an elegant multiple solution. Cathy Callahan's article appeared in **The Independent Florida Alligator,** *November 7, 1974.*

–SB

'BEAT' CLASS VIA PHONE TO FRISCO

By CATHY CALLAHAN
Alligator Staff Writer

"Do you hear us? You are talking to the class now Mr. Ferlinghetti."

"Well I'm feeling pretty classy."

Everyone in the class says "Hi" in unison.

"Yea, I'm feeling pretty high too."

Lawrence Ferlinghetti, best poet of the San Francisco Renaissance is talking to Ed Riley and David Rebmann's "Literature of the Beats" class–– over the telephone. The phone is attached to the tele-lecture system which amplifies his voice and allows students to question him with a microphone.

"Mr. Ferlinghetti, are you working on something now–– another book?"

"No, I'm working on rolling a joint. I'm also doing something like serious creative activity. But I'm not saying the most important things–– Howard Odum (of UF Department of Design) is. Why are you making long distance calls to me when the most important people are in your own backyard? Why don't you get Odum to talk to your class?"

Ferlinghetti speaks from his San Francisco Bookstore, City Lights Publishing house. It's a place where people gather to read and talk, a place Ferlinghetti always wanted to have.

Ferlinghetti knows a lot about Florida. He talks very little about his poetry. This is because he pictures the poet as a transmitter of ideas–– a consciousness-raiser. He believes poetry and commitment and politics go together. The poet should be involved in change.

"Did you know that the production of oranges is an energy loss to the state of Florida? Florida is pumping a lot of petroleum fertilizer into soil–– the soil is not there–– it's all fertilizer. And the top of the tree is putting forth little orange petroleum products," he says.

"You people in Florida are getting ripped off and you don't even know it. I get the feeling you are all living in lotus land down there. You should get in touch with the Florida Carrying Capacity Committee of the Legislature. They will tell you about the rape of Florida," Ferlinghetti says.

"I believe that industrial civilization will come to an end by the year 2,000. People don't believe this because of their own vested interests. You people in Gainesville feel you can have two cars in your garage and commute to class every day–– well that will soon be over."

A student asks Ferlinghetti if he has anything positive to say–– if he sees any optimistic signs.

"The Democrats won," he responds. "Well–– uh–– I think it's good that thinkers like Howard Odum are trying to get politicians and businessmen to stop their folly. I am optimistic that things are not going on the way they were.

"The energy commission's report "Energy and State Government" begins by saying all of human problems are vested in consciousness."

Ferlinghetti continues, "Buddhism or any religion is an attempt at raising consciousness. I'm interested in Buddhism because Christianity is not saying anything. Tibetan and Zen Buddhism are saying more than Christianity–– especially out here. I talk about that in the poem "Crucifixion" which is in "Coney Island of the Mind."

Another student asks, "Do you think we need religion at all –– why is it important?"

"I think you need to hear as much as you can from all directions. Do you want to go into a dark room with your ears stopped? We can go together," he laughs.

"In the '60's consciousness-expanding through the use of drugs took the place of religion. But it's all the same thing," Ferlinghetti said.

"But some people don't think so. That's why Leary is being held a political prisoner as much as anyone in the Gulag Archipelago," he added.

"Have you experimented with drugs," another student asks.

"Oh, yea. There is a drug store on every corner. Who hasn't?"

Another student asks him about his poem "Love is No Stone on the Moon."

Ferlinghetti responds, "Oh, that was pure ephemera. I wrote it before breakfast one morning–– I think there were a few greens on the table that got swept into the coffee."

Someone asks him about the poem "I Am Waiting," in which he talks about the withering of governments and anarchy.

"It would be nice if we could make the world safe for anarchy But Herbert Marcuse in "Eros and Civilization" explains that Eros is instinctual and that Civilization imposes restraints on eros."

"How strongly do you feel connected to the so-called beat movement?" someone asked.

"The press made up that term, or picked up on that term. The moon has no name but we call it the moon."

Another student asked, "If you feel so strongly about the end of civilization what are you doing about it?"

"I'm talking to you. That's my field."

●

New Journal

The non-macrobiotics from East West Journal (EPILOG, p. 744) left to start their own periodical in the same spiritual vein, different format (like CQ*). Relations between new mag and old are presented as friendly. If they both survive over time it'll be an interesting violation of biology's Competitive Exclusion Principle. My bet's on the* **New Journal,** *a small bet.*

–SB

New Journal
Robert Hargrove,
Leah Jackson,
Penny Garfinkel, eds.
$6 /yr monthly
from:
145 Portland St.
Cambridge, MA 02139

Laughing Gas

Definitive funky text on a form of dope which is so handy, reliable, and adaptive (proceed hit by hit and flash by flash) that enthusiasts have kept mum on the subject for years. Includes delightful history, practical manufacture, and safety precautions.

–SB

Laughing Gas
(Nitrous Oxide)
M. Shedlin, D. Wallechinsky,
S. Salyer, eds.
1973; 90pp.
$4.00 postpaid
from:
And/Or Press
P.O. Box 3431
Rincon Annex
San Francisco, CA 94119
or Whole Earth

It is impossible to convey an idea of the torrential character of the identification of opposites as it streams through the mind in this experience. I have sheet after sheet of phrases dictated or written during the intoxication, which to the sober reader seem meaningless drivel, but which at the moment of transcribing were fused in the fire of infinite rationality. God and devil, good and evil, life and death, I and thou, sober and drunk, matter and form, black and white, quantity and quality, shiver of ecstasy and shudder of horror, vomiting and swallowing, inspiration and expiration, fate and reason, great and small, extent and intent, joke and earnest, tragic and comic, and fifty other contrasts figure in these pages in the same monotonous way. The mind saw how each term belonged to its contrast through a knife-edge moment of transition which it effected, and which, perennial and eternal, was the nunc stans of life. The thought of mutual implication of the parts in the bare form of a judgment of oppositions as "nothing–– but," "no more–– than," "Only–– if," etc. produced a perfect delirium of theoretic rapture. And at last, when definite ideas to work on came slowly, the mind went through the mere form of recognizing sameness in identity by contrasting the same word with itself, differently emphasized, or shorn of its initial letter. Let me transcribe a few sentences:

What's mistake but a kind of take?
What's nausea but a kind of -usea?
Sober, drunk, -unk, astonishment.
Everything can become the subject of criticism–– how criticise without something to criticise?
Agreement–– disagreement!!
Emotion–– motion!!!
By God, how that hurts By God, how it doesn't hurt!
Reconciliation of two extremes.
By George, nothing but othing!
That sounds like nonsense, but it is pure onsense!
Thought deeper than speech. . . .!
Medical school; divinity school, school! SCHOOL! Oh my God, oh God; oh God!
The most coherent and articulate sentence which came was this:
There are no differences of degree between different degrees of difference and no difference.

–William James, 1882

Boomerang maniac

Dear W.E.E.–

Several years ago I bought a W.E.C. and ordered a "Boomerang Symposium" from The Smithsonian as a result of reading one of the articles.

Now I worry daily about whether the next shipment of boomerangs will arrive from overseas before the people who have ordered some begin to write nasty letters; or, whether I'll be able to sell the extras I ordered so I wouldn't run short the next time (like the coffee and doughnuts, the orders and the boomerangs never seem to come out even).

I blame the whole thing on W.E.C. and I think you should at least share some of this grief, if only vicariously.

Really, it is a good hobby and so far has managed pretty well to pay it's own way (but the boomerang business does not have such good returns, you know–– HO-HO-) but I am always in need of more advertising. . . .

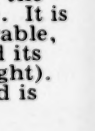
Please let me know what you think.

John F. Moe, M.D.
"Flying Things"
3500 Lafayette Rd.
Indianapolis, Indiana 46222

The CHAMPIONSHIP COMPETITION boomerang, a copy of the famous design by Frank Donnellan, is approved by the Australian Boomerang Association for competition use. It is made of plastic in Queensland, maple color, is very durable, and is weatherproof. Measurement is 16" tip to tip and its range is a regulation 30 yard circle (95 yards circular flight). Weight is 3 oz. Available in right or left hand (left hand is .50 extra). Made in Australia. $3.25 plus .25 shipping

•

"URBAN'S "COMEBACK" boomerang is made of white nylon with fiberglass reinforcement. It has red tips and measures 22" across them. This boomerang should be practically indestructible. Its range is great, about 220 yards circular flight. It is available in right hand only although the manufacturer states that it can be thrown left handed as well. (This does not seem to be possible unless the boomerang is modified.) Definitely not a toy, this is an adult boomerang and should not be used by children without supervision. Requires a strong thrower. Instruction booklets in both English and German come with each boomerang. Made in Western Germany. $12.00 plus .50 shipping



DONT HIT UP TOO SOON AFTER EATING, OR YOU MIGHT GET NAUSEOUS! DONT SMOKE, EITHER WHILE HITTING UP, YOU MIGHT NOT GET ENOUGH OXYGEN!
AS WELL, IF YOU SMOKE, YOU'LL BE DROPPING LIT BUTTS EVERYWHERE AS YOU STARE BLANKLY AFAR INTO PSYCHEDELIC INFINITY!
BILLEE!
WOW! FAR OUT
PAF!
NO

WELL, TYPICAL DRUG-CRAZED HIPPIE, YOU MADE A NUMBER OF NEAR-LETHAL ERRORS...
HEH HEH HEH!
USING AN AEROSOL CAN, HOLD IT UPRIGHT AND INJECT THE GAS DIRECTLY INTO A BALLOON...
SSSSS.
DONT EVER GET INTO AN ENCLOSED SPACE WITH NITROUS ATMOSPHERE, OR YOU WONT GET ENOUGH OXYGEN...
N2O
IF YOU HIT STANDING UP, HAVE A LOT OF CUSHIONS AND MATTRESSES AROUND TO FALL ON, IN CASE YOU DOWNRUSH AND PASS OUT!
DONT BREATH THROUGH YOUR MOUTH FROM A HOSE ON THE TANK! THE PRESSURE ON YOUR LUNGS AND THE POSSIBILITY OF FROZEN LIPS AND THROAT FROM THE COLD GAS MAKE THIS AN ODD WAY TO GET HIGH!
USE THE BALLOON! IT IS YOUR SAFEGUARD FOR A HAPPY, HEALTHY HIGH! YOU CANT OVERHIT FROM A BALLOON...
N2O

Creative Computing

High school kids are off dope and into alcohol. Grade school kids turn on with computers and astronautics. This new magazine by David Ahl, formerly of Digital Equipment Corporation, may help.

–SB

Creative Computing
(A Non-Profit Magazine of Educational and Recreational Computing)
David H. Ahl, ed.
$8 /yr bimonthly
from:
Ideametrics
P.O. Box 789-M
Morristown, NJ 07960

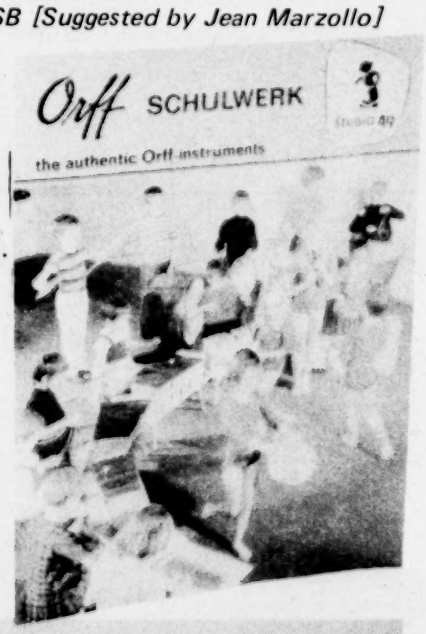
Is Big Brother Watching You?

The NATIONAL CRIME INFORMATION CENTER (NCIC) may have information about you. To find out what the FBI knows about you, send $5 and a set of rolled-ink fingerprints (which you can get from your local police station) taken on a fingerprint card, and containing your name and birth date, to: FBI, Identification Division, Washington D.C. 20537. Inaccurate data on your record can be corrected by contacting the agency that originally provided the information to the FBI.

Orff Schulwerk instruments

High quality instruments designed for school use by German composer Carl Orff. Glockenspiels ($40), xylophones ($130), tambourines ($30), metallophones ($135), hanging cymbals ($40), bass drums ($200), rotary timpani ($150), etc.

–SB [Suggested by Jean Marzollo]



Catalog
from:
Magnamusic-Baton, Inc.
10370 Page Industrial Blvd.
St. Louis, MO 63132

Fastest potty in Murphysboro

I can't comment on Azrin's and Foxx's book (**Toilet Training in Less Than a Day**, EPILOG, page 613) but can say a bit about the method. Our daughter, Jessica, served as one of the subjects in the research that led to the book. Dick Foxx did the training.

It works–– beautifully! We had all kinds of problems with Jessica's toilet training. A friend of ours (another prominent B-mod practitioner at Anna State Hospital, a colleague of Foxx) recommended we call Foxx. We did. Foxx showed up about nine or ten one morning, trotted off to the john with 20 month old Jessica and a bag of M&M's and spent the next four or five hours conditioning her. By the end of that time, she was performing the ritual consistently and "appropriately". Dick came back the next day and spent another couple of hours making sure she was properly programmed. She was. And has been for the last three years.

We had all sorts of fears about the effects B-mod might have on our kid–– Would she turn into a reward freak, expecting goodies every time we asked that she perform to our expectations? Would the reward system impair her ethical development? Would we wake up some morning to find our lovely spontaneous child had been turned into a restrictively programmed robot?

None of that happened. She just learned the ritual and that's all. Through this experience and through the information we've gotten from our friends that work in the field, we've come to accept limited operant conditioning intervention as a powerful tool for individual growth. We still fear the possibility of a world in which operant conditioning would be the dominant educational method. What we fear, we think, is the loss of magic and fantasy. The operant definition of the person would lead to a moral, ethical and cultural reductionism that would ignore the element of Chaos present in the imbedding Suprasystem.

Anyway: Yes, the book is probably very good, judging from the way it was researched. The method saved Maria and I a lot of hassle and saved Jessica the trauma of having to go through what probably would have been a period of frustration and confusion.

Thanks for coming back. The first Catalogs fed dreams. Now, you're necessary to teach us and others how to survive.

–Dave and Maria Dix
Murphysboro, Illinois

Quickies

• **Meditation cushions** *are available from The Endless Knot, 4774 Lyell Rd., Spencerport, NY 14559 as well as the other three sources on EPILOG p. 745.*

• **Watership Down author** *Richard Adams holds forth on children's books in the August 19 '74* **Bookletter.** *The best ones are simply good books, which children happen to like. He recommends:* **Alice in Wonderland, Alice Through the Looking Glass, The Wind in the Willows, Robinson Crusoe** *(unabridged),* **Gulliver's Travels** *(unabridged),* **Mister Midshipman Easy** *(Frederick Marryat),* **Jane Eyre, The Mill on the Floss, Moonfleet** *(John M. Falkner),* **Treasure Island, Oliver Twist, A Christmas Carol, The Hobbit. The Ghost Stories of an Antiquity** *(M. R. James),* **The Tale of Pigling Bland** *(Beatrix Potter),* **Green Eggs & Ham** *(Dr. Seuss),* **Lord of the Flies, Animal Farm, The Owl Service** *(Alan Garner),* **A High Wind in Jamaica** *(Richard Hughes),* **The Pilgrim's Progress, The Three Mulla-Mulgars** *(or Three Royal Monkeys, by Walter De la Mare), and Kipling's* **Just-so Stories,** *the* **Jungle Books, Puck of Pook's Hill** *and* **Barrack-Room Ballads.** *Adams himself has completed a novel called* **Shardik** *now available in England. Shardik is a bear; the story is "a religious allegory/fantasy."*

Updated The Last Whole Earth Catalog

Changes

If you have a copy of the "updated" CATALOG (13th, 14th, or 15th printing)—— "all listings accurate as of May 1974"—— the following corrections will make all your listings accurate as of December 1974.

Future CQ's will continue the service.

—SB

p. 3
Nine Chains to the Moon
$2.95
from:
Doubleday and Co., Inc.
Garden City, L.I., NY 11530

p. 5
Star Maker
Change $2.50 to **$1.25**
Change Dover Publications Inc., etc.
to **Penguin Books**
7110 Ambassador Rd.
Baltimore, MD 21207

p. 6
The Unexpected Universe
Change $5.75 to **$1.95**

p. 7
NASA Earth Photo Books—
This Island Earth
Change $6.00 to **$9.00**

p. 8
The Biosphere
Change $3.25 to **$3.50**

Environment, Power and Society
Change $5.95 to **$6.50**

p. 22
Mankind 2000
Change $10.00 to **$12.00**

p. 28
Ecology and Resource Management
Change $14.50 to **$15.00**

p. 31
The Age of Discontinuity
Change $7.95 to **$10.00**

p. 32
Ecology
Change $4.25 to **$4.50**

p. 33
Environment and Man
Change $7.50 to **$7.95**

p. 41
Clear Creek
Defunct

p. 42
Environmental Information Access
Change "124 East 38th Street" to
124 East 39th Street

p. 52
Where to Get Compost Makers—
The Roto-Hoe Company
Change "Newbuty, Ohio" to
Newbury, Ohio

p. 59
Hydroponics—**Soilless Culture**
Change $4.95 to **$2.95**

p. 65
Livestock and Poultry Production
Change $13.00 to **$14.96**

p. 69
Brace Research Institute Plans—
How to Make a Solar Still
Change $.90 to **$1.25**
How to Make a Solar Steam Cooker
Change $.90 to **$1.25**
How to Heat Your Swimming Pool Using Solar Energy
Change $.50 to **$.75**
How to Construct a Cheap Wind Machine for Pumping Water
Change $.50 to **$.75**
How to Make a Solar Cabinet Dryer for Agricultural Produce
Change $.90 to **$1.25**
Instructions for Constructing a Simple 8 sq. ft. Solar Still for Domestic Use and Gas Stations
Change $.90 to **$1.25**
Plans for a Glass and Concrete Solar Still
Change $3.50 to **$4.50**
Production Drawing for Solar Cabinet Dryer
Change $1.50 to **$2.50**
Add **How to Build a Solar Water Heater $1.25**
Add postal code **H32 2L4**

Windmills and Watermills
Change "Out of Print" to
$8.95 paper

p. 70
Sanitation and Health—**Composting**
Change $6.00 to **$6.25**
Add **For other countries (must be paid in pounds Sterling, U.S. Dollars or Swiss Francs) from:**
World Health Organization
Distribution and Sales Service
1211 Geneva 27
Switzerland

p. 73
Manual of Individual Water Supply Systems
Change "U.S. Dept. of Health, Education and Welfare" to
Environmental Protection Agency
Change $.60 to **$2.20**
Add **Or check your local E.P.A. office, ask for #188.**

p. 78
United Farm and Strout
Delete Pasadena address for
Strout Realty

p. 81
Fruits of Hawaii
Change "University of Hawaii Press" to
University Press of Hawaii

p. 86
Japanese Homes and Their Surroundings
Change $3.00 to **$3.50**

p. 93
Domebook Two
Change $4.20 to **$5.00**

p. 96
Fundamentals of Carpentry
Change $7.40 to **$7.75**

p. 98
National Electrical Code 1968
Add **Revised 1971 and 1974**
Change $3.00 to **$5.50**

p. 99
Aladdin Discount—The Lamp Company
Defunct

Ashley Thermostatic Wood Burning Circulator
Add **Ashley Automatic Heater Co.**
P.O. Box 730
Sheffield, AL 35660
or **Ashley Spark Distributors, Inc.**
320 N.W. Hoyt St.
Portland, OR 97209
Add **or Whole Earth Catalog ($143.95 and $159.95 in the store)**

p. 104
Concrete Manuals
Cement Mason's Manual for Residential Construction
Out of Print

Concrete Improvements for Farm and Ranch
Out of Print

p. 108
Plastics in Building
Change $20.00 to **$22.50**

p. 122
Introduction to Engineering
Change $12.50 to **$13.50**

p. 124
Solar Energy Society
Add **Current subscriptions, back films on microfilm and back issues from:**
Microfilms International
Marketing Corp., Inc.
380 Saw Mill Rd.
Elmsford, NY 10523
or **Microfilms International**
Marketing Corp., Inc.
Cowper House
Olney
Bucks, England

p. 127
Product Engineering
Change "Morgan Granpian" to
Morgan Grampian

p. 129
Plastics in the Modern World
Out of Print

p. 130
Clearinghouse
Change "Clearinghouse for Federal Scientific and Technical Information" to **U.S. Dept. of Commerce, National Technical Information Service**

p. 133
File Filosophy
Out of Print

p. 136
Welding Craft Practice
Change $2.40 to **$3.00 (Both volumes)**

p. 143
Home and Workshop Guide to Sharpening
Change $2.50 to **$2.95**

p. 148
How to Build Your Own Furniture
Change $1.95 to **$3.50**

p. 162
Lipton Kickwheel Kit
Add **Send 10¢ for brochure**

p. 164
New Key to Weaving
Change $12.00 to **$13.95**

Byways in Handweaving
Change $7.95 to **$8.95**

p. 172
Coats and Clark's Sewing Book
Out of Print

p. 183
The Effective Executive
Change $5.95 to **$6.95**

p. 187
Foods By Mail—**Erewhon Trading Co.**
Change "8003 Beverly Blvd." to
8001 Beverly Blvd.

p. 191
The Natural Foods Cookbook
Change $.95 to **$1.25**

The Tassajara Bread Book
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 195
Vegetarian Cookbooks—
Tassajara Bread Book
Change $2.95 to **$3.50**
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 196
Chinese Food and Utensils—
Cathay Food Products, Inc.
Defunct

p. 210
Valtox Drug Identification Kit
Change "P.O. Box 1048" to
P.O. Box 700
Add **Available only to police departments, schools and hospitals.**

p. 220
Snugli Baby Carrier
Change $31.95 to **$35.95**

p. 232
Hong Kong—**Far East Company**
Change "P.O. Box 6784" to
P.O. Box 7335

p. 239
New Life Environmental Designs Institute
Add **New Life Environmental Designs Institute**
1510 North Drive
Mt. Pleasant, MI 48858

p. 241
Friends
Defunct

Catalyst
Change "Catalyst" to **Airmail**

p. 242
Whole Australian Catalogue
Defunct

p. 243
Mother Earth News
Change $8/yr to **$10/yr**

p. 247
Katadyn Pocket Filter
Change $150.00 to **$60.00**
Change Philmar Company, etc.
to **P.O. Box 154**
CH-8304 Wallisellen
Industriestrasse 27
Switzerland

p. 250
Hemmings Motor News
Add **Hemmings Motor News**
Box 380
Bennington, VT 05201

Auto Engines and Electrical Systems
Change $10.95 to **$12.95**

p. 254
The Way of the White Clouds
Change $3.95 to **$4.75**
Change Shambhala Pub., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 257
Manual for Ski Mountaineering
Change $4.75 to **$4.95**

p. 283
Quicksilver Canoes
Defunct

p. 288
Piloting, Seamanship and Small Boat Handling
Change $8.95 to **$9.95**

p. 305
Traveler's Directory
Change P. Kacalanos, Editor, etc.
to **Judy and Dave Miller, Editors**
P.O. Box 1547
535 Church St.
Lancaster, PA 17604

p. 313
Human Biocomputer
Change $4.95 to **$1.95**
Change Julian Press, etc.
to **Bantam Books**
666 Fifth Ave.
New York, NY 10019

Business

p. 315
The Machinery of the Brain
Change $1.95 to **$2.45**

p. 316
Brains, Machines & Mathematics
Change $1.95 to **$2.45**

p. 321
Basic Graphics
Change $11.50 to **$14.50**

p. 332
Building Electric Organs
Change "Schober Organ Corp." to
Shober Organ Corp. (2X)

p. 334
Squier Strings
Change V. C. Squier Co., etc.
to **V. C. Squier Co.**
Div. of CBS Inc.
35 S. Edison St.
Battle Creek, MI 49105
Add **Squier also makes Fender Strings**
(Fender is also a division of CBS.)

p. 337
Shakuhachi
Change "Rt. 1 Hilltop Dr." to
P.O. Box 294

p. 352
Total Picture Control
Change "Garden City, NJ" to
Garden City, L.I., NY 11530

p. 362
Advertising Graphics
Change $7.50 to **$7.95**

p. 368
Diary of an Early American Boy
Add **postpaid**

p. 370
Initial Teaching Alphabet–**The ITA Handbook for Writing and Spelling**
Change $2.00 to **$2.65**

p. 377
Attractive Universe
Out of Print

p. 378
Worlds in the Making
Change **$5.35** to **$5.75**

p. 381
Indian Craft Materials–
Four Winds Trading Post
Change "Catalog $.25" to
Catalog $1.00

p. 384
The Johnson Smith Catalog–
Underwater Motor
Change $1.00 to **$1.25**

p. 392
How to Solve It
Change $1.95 to **$2.45**

p. 402
This Book Is About Schools
Add **postpaid**

p. 409
Let Us Now Praise Famous Men
Change $1.65 to **$1.95**

p. 412
Chemically Aborting Unwelcome Trips–**Naturalism, Inc.**
Change Box 8318
Chicago, Illinois
to **Box 3621**
Los Angeles, CA 90028

p. 413
Psychedelic Review
Defunct

p. 414
Psychedelics
Change $2.45 to **$2.95**

p. 417
Big Sur Recordings
Change Box 4313
San Rafael, CA 94903
to **2015 Bridgeway**
Sausalito, CA 94965

p. 420
Man's Presumptuous Brain
Change $1.95 to **$2.45**

p. 421
Sense Relaxation–Below Your Mind
Change $1.50 to **$4.95**
Change Pocket Books, etc.
to **Macmillan Pub. Co., Inc.**
Front and Brown Sts.
Riverside, NJ 08075

p. 423
Meditation in Action
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 424
Kundalini: The Evolutionary Energy in Man
Change Shambhala Pub., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 430
The Teachings of Don Juan: A Yaqui Way of Knowledge
Change Ballantine Books, etc.
to **Pocket Books**
c/o Simon and Schuster, Inc.
One West 39th Street
New York, NY 10018

p. 431
Mysticism
Out of Print

p. 433
The I Ching
Change Shambhala Pub., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

We think in generalities, but we live in detail.
–Whitehead

Whole Earth Epilog

Changes

The following corrections may be added to the new EPILOG (1st or 2nd printing) to bring it up to December 1974 currency as well as correct a few mistakes we made.

Future **CQ***'s will continue the service.*

–SB

p. 454
Pigs for the Ancestors
Change $2.95 to **$3.45**
Change 302 Temple St. to
92A Yale Station
Change Zip Code 06511 to **06520**

p. 457
The Myth of the Eternal Return
Change $2.95 to **$2.45**

p. 458
Passages About Earth
Add **$1.95 paperback, March 1975**

Mental Maps
Change $1.45 to **$3.50**

p. 459
Interpretation of Aerial Photographs
Change $11.95 to **$13.95**

p. 460
Continents Adrift
Change $3.50 to **$4.50**
Change Cooper, Freeman & Co., etc.
to **W. H. Freeman Co.**
660 Market St.
San Francisco, CA 94104

Fascinating World of Animals
Change $14.95 to **$16.25**

p. 461
Ecology
Change $15.00 to **$17.00**
Change Zip Code 92201 to **97201**

p. 462
The Ecological Theater and the Evolutionary Play
Change $6.50 to **$7.50**
Change 302 Temple St. to
92A Yale Station
Change Zip Code 06511 to **06520**

Atlas of Evolution
Out of Print

p. 465
Toward Global Equilibrium: Collected Papers
Change $18.00 to **$22.00**

p. 467
The Ecologist
Change "Golsmith" to **Goldsmith**

Not Man Apart
Change $5/yr bimonthly to
$10/yr fortnightly

Should Trees Have Standing
Change "William Kaufman" to
Walter Kaufman

Conservation Directory
Change "William E. Clark, Ed." to
Gloria H. Decker, Ed.
Change $2.00 to **$2.50**

p. 468
Poisoned Power
Out of Stock indefinitely

p. 475
Seeds, Spades, Hearths, and Herds
Change $1.95 to **$2.45**

p. 476
Mushrooms of North America
Change $17.95 to **$19.95**

p. 477
Spiders and Their Kin
Change $1.50 to **$2.50**
Change Zip Code 53404 to **53401**
Add **Dept. M**

Butterflies and Moths
Change $1.50 to **$2.50**
Change Zip Code 53404 to **53401**
Add **Dept. M**

Spiders, Scorpions, Centipedes and Mites
Change $4.50 to **$6.50**

"How to Know" Series
How to Know the Immature Insects
Change $3.50 to **$4.00**
How to Know the Insects
Change $3.25 to **$3.75**
How to Know the Butterflies
Change $3.75 to **$4.25**
How to Know the Beetles
Change $4.50 to **$5.00**
How to Know the Grasshoppers
Change $4.50 to **$5.00**
How to Know the Spiders
Change $4.25 to **$4.75**

p. 478
Birds of North America
Change $4.50 to **$4.95**
Change Zip Code 53404 to **53401**
Add **Dept. M**

Living Reptiles of the World
Out of Print

p. 480
Wildlife in America
Out of Print

Mind in the Waters
Change $14.50 to **$14.95**

p. 482
Biology of Plants
Change $12.95 to **$14.95**

How to Identify Plants
Change $2.75 to **$2.95**

p. 483
Edible and Poisonous Plant Cards
Add **or Whole Earth**

Herb Suppliers–**Wide World Herbs Ltd.**
Change "Free Catalog" to **$.25**
Change "Retail only" to **Wholesale and Retail**

The Complete Book of Herbal Dyes
Change $1.50 to **$2.50**
Change The Lanark County, etc.
to **Fahrenheit 451**
Box 1086
Carleton Place
Ontario, Canada

p. 485
Trees, Shrubs and Vines
Change $3.95 to **$4.95**
Change "Box 8, University Station" to
1011 E. Water St.

Tree Crops
Change $7.95 to **$8.95**
Delete "1 Park Ave."

p. 486
Rural Water Systems Planning and Engineering Guide
Add **from: Commission on Rural Water**

River Ecology and Man
Change $12.95 to **$14.50**

p. 487
Septic Tank Practices
Add **from: Septic Tanks**

Composting Privy
Change $1.50 plus postage to
$2.00 postpaid

Stop the Five Gallon Flush!
Delete "or Whole Earth"
Add postal code **H3C 391**

p. 488
Clean Water
Change $7.95 to **$10.00**

Aquaculture
Change $37.50 to **$14.95**

p. 489
People and Land **Center for Rural Studies**
Change 345 Franklin St. to
1095 Market St., Room 418
Change Zip Code 94102 to **94103**

p. 492
Soil Fertility and Animal Health
Out of Print

Weeds, Guardians of the Soil
Delete "One Park Ave."

p. 493
Vegetation and Soils
Change $8.95 to **$9.75**

Approved Practices in Soil Conservation
Change $8.50 to **$9.00**

p. 495
Farmers of Forty Centuries
Change $7.95 to **$8.95**

p. 496
Beekeeping—The Hive and the Honey Bee
Change $6.75 to **Price not set, inquire**

p. 497
How to Grow Marijuana Indoors Under Lights
Change Sun Magic Publishing Co., etc.
to **Pacific Pipeline**
Box 3711
Seattle, WA 98124

p. 498
Horses of the World
Change $10.95 to **$9.95**

The National Stock Dog Magazine
Add **No checks. Postal Money Orders only.**

p. 500
Gardening Without Poisons
Out of Print

Commonsense Pest Control
Change $2.00 to **$1.16**

p. 501
The Organic Method Primer
Change **$6.60** to **$7.00**
Delete "or Whole Earth"

p. 502
How to Grow More Vegetables
Add **or Whole Earth**

How to Sharpen and Use an Axe and Get the Most Out of Fuel Wood
Delete "or Whole Earth"

p. 503
Compost
Change Biochemical Research Laboratory, etc.
to **Bio Dynamics**
Box 253
Wyoming, RI 02898

p. 505
Hydroponic Gardening
Change $6.95 to **$3.95**

Beginner's Guide to Hydroponics
Add **or Whole Earth**

Soilless Culture
Change $2.45 to **$2.95**
Add **or Whole Earth**

p. 508
The Ecol Operation
Add postal code **H3C 391**

p. 509
Persian Architecture
Out of Stock indefinitely

Medieval Structure: The Gothic Vault
Change $25.00 to **$7.50**
Change Univ. of Totonto
Toronto M5S 1A6 Canada
to **33 E. Tupper St.**
Buffalo, NY 14203

p. 510
House Form and Culture
Change $2.50 to **$2.95**

p. 511
Design Drawing Experiences
Delete "or Whole Earth"

American Building
Change $15.00 to **$12.50**

p. 512
The Poetics of Space
Change $2.95 to **$3.95**

p. 513
Illustrated Handbook of Vernacular Architecture
Change $8.95 to **$9.00**

p. 514
Wood Frame House Construction
Change 124 South La Brea Ave.
Los Angeles, CA 90036
to **542 Stevens Ave.**
Solana Beach, CA 92075

Roofing Simplified
Change $1.50 to **$2.00**

p. 515
Adobe—Build it Yourself
Add **Box 3398**

p. 516
Our House of Stone
Change to **How to Build a Low Cost House of Stone**
Change $2.00 to **$3.00**
Add **or Whole Earth**

p. 517
Shelters, Shacks and Shanties
Change $4.95 to **$5.95**

p. 518
Wood Stoves and Accessories
Information on Jøtul Stoves
Delete "David Lyle, So. Acworth, N.H. 03607
Add **or Whole Earth**

Heat Saver
Change Box 9
Umpqua, OR 97486
to **Star Route**
Box 82
Silverton, OR 97381
Change $78.00 to **$79.00**
Add **Stamped, self-addressed envelope appreciated**

p. 519
Lightning Protection
Change $14.95 to **$16.50**

p. 520
What Wood is That
Out of Stock indefinitely

Old Ways of Working Wood
Change "South Street" to **Valley Road**
Add **or Crown Publishers**
419 Park Ave. South
New York, NY 10016

p. 521
De Christoforo's Complete Book of Power Tools
Change $9.95 to **$11.95**

p. 522
The Traditional Crafts of Persia
Change $7.95 to **$8.95**

Nomadic Furniture—Nomadic Furniture 2
Change "Random House, Inc." to **Pantheon Books**

Irish Folk Ways
Change $5.95 to **$6.50**

p. 523
Environmental Communications Catalog
Change "free" to **$1.00 refundable**
Change "62 Windward Ave." to **64 Windward Ave.**

p. 524
IL 1 through 7
IL3 Out of Print

The Dome Builder's Handbook
Change $4.00 to **$4.25**

Dome Cookbook of Geodesic Geometry
Add **or Whole Earth**

p. 525
A Manual on Building Construction
Change International Development Center, etc.
to **9 King St.**
London WC2E 8HN
England

p. 527
Energy Primer
Change "$5.00 elsewhere" to **$5.50 elsewhere**

p. 528
Alternate Sources of Energy: Practical Technology and Philosophy for a Decentralized Society
Change $4.00 to **$5.00**

p. 529
Alternative Sources of Energy Bibliography
Out of Print

p. 531
Brace Research Institute Plans
How to Make a Solar Still
Change $.90 to **$1.25**
How to Make a Solar Steam Cooker
Change $.90 to **$1.25**
How to Heat Your Swimming Pool Using Solar Energy
Change $.50 to **$.75**

How to Construct a Cheap Wind Machine for Pumping Water
Change $.90 to **$1.25**
How to Make a Solar Cabinet Dryer for Agricultural Produce
Change $.90 to **$1.25**
Instructions for Constructing a Simple 8 sq. ft. Solar Still for Domestic Use and Gas Stations
Change $.90 to **$1.25**
Plans for a Glass and Concrete Solar Still Change $3.50 to **$4.50**
Production Drawing for Solar Cabinet Dryer Change $1.50 to **$2.50**
Add **How to Build a Solar Water Heater $1.25**
Add postal code **H32 2L4**

Solar Water Heating
Change "24pp." to **32pp.**
Change $1.50 to **$4.00**
Change Steven Paige, etc. to
Edmund Scientific
Barrington, NJ 08007
Add **Catalog #9484**

p. 533
Solar Heated Buildings: A Brief Survey
Change "36pp." to **52pp.**
Change $4.00 to **$5.00**

p. 534
Low Impact Technology Group
Change "London WC2" to **London WC2E 8HN**

p. 537
Wind and Windspinners
Add **3rd Class** to $7.50 postpaid
Add **$9.50 airmail, including overseas**

Wind Generator Dealers—**Solar Wind Co.**
Change "R.F.D. 2" to **P.O. Box 7**

p. 538
Alternative Sources of Energy
Delete "Back issue No. 9 75¢"

p. 539
Solar Energy Digest
Add **$1.00/sample copy**

The Mother Earth News
Change $8.00/yr to **$10.00/yr**

p. 540
High-Low BOOM!
Change $4.00 to **$5.50**

p. 542
Aladdin Again
Change P.O. Box 1219
Fort Collins, CO 80521
to **P.O. Box 151**
Armuchee, GA 30105

p. 543
The New Glassfibre Book
Change $4.50 to **$6.95**
Change Motorbooks International, etc.
to **Classic Motorbooks Inc.**
3106 West Lake Street
Minneapolis, MN 55416

p. 544
Craftsmanship Catalog
Add **$1.00**

p. 545
Making Do
Out of Print

600 More Things to Make
Change $7.95 to **$9.25**

p. 547
The Foxfire Book
Change $3.75 to **$3.95**

p. 549
Introduction to Woodcarving Tools
Add **For Big and Small-time Chiselers** to title

Mail Order Sources
Add **13. J.A. Henckels**
Zwillingswerk, Inc.
1 Westchester Plaza
P.O. Box 127
Elmsford, NY 10523

p. 550
Brendan's Leather Book
Change $3.50 to **$3.95**

p. 556
Step-by-Step Beadcraft
Change $2.95 to **$3.95**
Change Zip Code 53404 to **53401**
Add **Dept. M**

p. 560
Dyes from Plants
Change $8.95 to **$9.95**

p. 562
Shuttle, Spindle & Dyepot
Change $7.00/yr to **$9.00/yr**
Change "1013 Farmington Ave." to **998 Farmington Ave.**

p. 563
Weaving a Navajo Blanket
Add **or Whole Earth**

p. 564
Earth Basketry
Change $2.50 to **$2.98**

p. 565
Indian Basketry and How to Make Indian and Other Baskets
Out of Print

p. 566
Creative Crochet
Change $10.75 to **$11.95**

p. 568
Mountain People, Mountain Crafts
Change $2.95 to **$3.50**

p. 569
Step-by-Step Tablet Weaving
Change $2.50 to **$3.95**
Change Zip Code 53404 to **53401**
Add **Dept. M**

Cardweaving
Change $10.50 to **$10.95**

p. 570
English Smocks
Add **or Whole Earth**

p. 571
Embroidery—**The Stitches of Creative Embroidery** Change $7.95 to **$4.95**

Mary Thomas Dictionary of Embroidery Stitches
Change $2.00 to **$1.90**

Mary Thomas Embroidery Book
Change $2.00 to **$1.98**

D.M.C. Encyclopedia of Needlework
Change $9.50 to **$11.50**

The Craft of Crewel Embroidery
Change $2.95 to **$3.95**

Needlepoint
Change "Lane Magazine & Book Co." to **Lane Publishing Company**

The Complete Encyclopedia of Needlework
Change $5.20 to **$6.20**

Bargello: Florentine Canvas Work
Change $6.95 to **$4.95**

The Art of Crewel Embroidery
Change Spinnerin Yarn Co. Inc., etc.
to **Crown Publishers**
419 Park Ave. South
New York, NY 10016

p. 572
Old Patchwork Quilts and the Women Who Made Them
Change $7.95 to **$8.50**

p. 573
Patchwork
Change $11.50 to **$11.00**

p. 575
How to Make Your Own Sewing Patterns
Change 719 Broadway
New York, NY 10003
to **15 West 4th St.**
New York, NY 10012

Fiskars
Add **From notion departments in your local store**

Pattern Making by the Flat Pattern Method
Change $5.75 to **$5.95**

p. 577
Yellow Pages **Getting Together a People's Yellow Pages**
Delete "or Whole Earth"

People's Yellow Pages
Delete "or Whole Earth"

Chinook Centrex Portland Access Directory
Delete "or Whole Earth"

Gay Yellow Pages, The Quarterly Directory
Delete "or Whole Earth"

p. 578
Hey Beatnik!
Change $1.95 to **$2.75**

Journal of the New Harbinger
Change "D.R.M. Friedrichs, Ed." to **Margaret Lamb, Ed.**
Change "bimonthly" to **quarterly**

p. 581
The New Dog Encyclopedia
Out of Print

The Merck Veterinary Manual
Change $14.00 to **$13.25**
Delete "Merck doesn't restrict this book's sale, as it does for the Merck Manual (Pg. 214 the human equivalent), so it's easy to get."

p. 583
Home Emergency Ladies Pal
Add **or Whole Earth**

p. 585
The Death and Life of Great American Cities
Change $2.50 to **$2.95**

p. 586
Hammocks
Change "Hammock Living" to **Hammock Master**

p. 587
Guide to Federal Consumer Services
Delete "or Whole Earth"

p. 589
The Food Conspiracy Cookbook
Change $3.95 to **$4.95**

The Supermarket Handbook
Change $7.95 to **$3.95**
Change Harper and Row, etc.
to **The New American Library**
1301 Avenue of the Americas
New York, NY 10019

p. 590
The Co-Op Low Cost Cookbook
Change $1.24 to **$1.30**

Good Cheap Food
Change "Marian Ungerer" to **Miriam Ungerer**

From Your Co-Op Home Economist
Change $2.54 to **$1.43**

p. 591
Tassajara Cooking
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 593
Jötul Cast Iron Waffle Iron
Change $20.00 to **$16.75**

p. 594
Old Fashioned Recipe Book
Change $10.37 to **$10.87**
Add **or Whole Earth**

p. 595
Home Winemaking Books—Step by Step Winemaking
Change $2.50 to **$2.95**

p. 598
Wheat for Man
Change $1.95 to **$2.50**

p. 600
Lanello Reserves
Change "400 lbs." to **350 lbs.**

Gateway to Survival is Storage
Change "12th Edition" to **13th Edition**
Add **Available in Spanish, French, German and English**

Family Storage Plan
Change $1.75 to **$1.95**

How to Be Prepared
Add **For Any Crisis** to title

p. 601
The Basic Book of Organically Grown Foods
Out of Stock indefinitely

Mill and Mix
Change $235.00 to **$239.00**
Change $95.00 to **$119.00**
Change $330.00 to **$358.00**

p. 604
Handbook of Non-Prescription Drugs
Delete "or Whole Earth"

p. 606
Serve the People
Change $10.00 to **$4.45**

p. 610
Lovers, Friends, Slaves
Change $8.95 to **$1.75**

p. 611
Boys and Sex, Girls and Sex
Both **Out of Print**

p. 613
Adoptive Nursing—**Relactation: A Guide to Breastfeeding the Adopted Baby**
Change $1.00 to **$1.25**

p. 614
Questions and Answers on Death and Dying
Change $1.50 to **$.95**

p. 616
While You're Up, Get Me A Grant—The Foundation Directory
Change $15.00 to **$17.50**

p. 618
Communes, Law and Commonsense
Change $2.95 to **$3.25**

p. 621
Washington Watch
Change "Washington Watch" to the **Washington Spectator**
Change "$12.00/yr" to **$10.00/yr**
Change South Point Plaza
Lansing, MI 48910
to **P.O. Box 1750**
Annapolis, MD 21404

p. 623
Cane
Out of Print

Black Bourgeoisie
Change $2.95 to **$.95**

The Black Anglo-Saxons
Out of Print

Black Awakening in Capitalist America: An Analytic History
Change $1.95 to **$2.50**

p. 624
From Slavery to Freedom: A History of Negro Americans
Out of Print

American Negro Poetry
Change $4.95 to **$2.65**

Living Black American Authors, A Bibliographical Dictionary
Delete "or Whole Earth"

A Documentary History of the Negro People in the United States
Change $3.95 to **$4.95 (Both volumes)**

The Autobiography of Malcolm X
Change $1.50 to **$1.95**

p. 625
Black Books Bulletin
Change "7848 So. Ellis Ave." to **7524 So. Cottage Grove Ave.**

p. 626
Access to China—Background Books
Change "Note" to read **Note: All books preceded by asterisks can be ordered directly from China Books and Periodicals (see page 631 for addresses), or from Guozi Shudian, China Publications Centre, P.O. Box 399, Peking, China. Allow for six weeks shipping.**

p. 629
Serve the People: Observation on Medicine in the People's Republic of China
Change $10.00 to **$4.45**

p. 633
Nagel's Guide to China
Change $29.00 to **$35.00**

p. 636
Alaska
Change "Anchorage, AL 99508" to **Anchorage, AK 99508**

p. 637
1973/74 Hostel Guide and Handbook
Change Zip Code 222025 to **22025**

Riding the Rails
Change $9.95 to **$4.95**
Change Gambit, Inc., etc.
to **Houghton Mifflin Co.**
Wayside Rd.
Burlington, MA 01803

p. 638
Bike Tripping
Change $3.00 to **$3.95**

p. 639
Sutherland's Handbook for Bicycle Mechanics
Change $5.95 to **$6.70**
Add **W** to Box 9601

p. 642
Classic Motorbooks Catalog
Add **$.50**
Change "3106 West Lake St." to **3106/PR West Lake St.**

p. 644
How to Restore Your Model A
Change $7.00 to **$8.00**

p. 645
Hang Gliding
Change 48-194 Walker St.
North Quincy, MA 02171
to **2431 Calle Almonte**
Santa Barbara, CA 93109

p. 652
The Telltale Compass
Change "Stanley Shans" to **Stanley Stearns**

Advanced First Aid Afloat
Change $3.75 to **$5.00**

p. 653
Introduction to Water Trails in America
Change $2.95 to **$3.95**

p. 655
Riverside Fiberglass Canoe Co.
Change $44.95 to **$49.95**
Change $64.95 to **$69.95**
Add **Write for free literature.**

p. 656
Fly Fishing Books
Change "Out of Print" for Haig Brown's **Return to the River, Western Angler,** and **A Primer of Fly Fishing** to **$7.50 each from Crown Publishers**

p. 657
Retail Stores and Fishermen—Oregon, Idleyld Park
Change "Steelhead information for Rogue River" to **Steelhead information for Umpqua River**

p. 658
Outdoorsman's Handbook
Change $5.95 to **$6.95**

p. 659
Natural Food Backpack Dinners
Change $1.25 to $1.40 postpaid to **$1.15 to $1.60 postpaid**

p. 664
The Outdoor Observer
Change $1.95 to **$4.50**

Deadfalls and Snares
Change $1.50 to **$2.00**

p. 666
The Gun Digest Book of Knives
Change $5.95 to **$6.95**

Knives and Knifemakers
Change $4.95 to **$5.95**

Falconry for You
Change $4.95 to **$5.95**

p. 667
Desert Hawking
Change Box 896
Tuba City, AZ 80045
to **Box 284**
San Carlos, AZ 85550

p. 668
Guide to Marine Fishes
Change $6.50 to **$5.95**

p. 671
The First New England Catalog
Change "Catalog" to **Catalogue**

p. 672
Mail Scale
Change "Rick Fields" to **Rick Wannall**

p. 674
Adaptive Coloration in Animals
Change $21.00 to **$24.75**

p. 675
Birth and Death and Cybernation
Change to **Cybernetics of the Sacred**
Change $9.95 to **$2.50**
Change Interface, etc.
to **Doubleday and Co., Inc.**
501 Franklin Ave.
Garden City, L.I., NY 11530

Oh, What a Blow That Phantom Gave Me!
Change $1.95 to **$2.25**

p. 676
Communication: Ethical and Moral Issues
Change $19.50 to **$23.50**

p. 677
The First Writing Book
Change "302 Temple St." to **92A Yale Station**
Change Zip Code 06511 to **06520**

The Art of Written Forms
Change $10.95 to **$6.50**
Change Holt, Rinehart & Winston, Inc. etc.
to **Pentalic Corporation**
132 West 22nd St.
New York, NY 10011

p. 678
Bookmaking Access—Bibliography Paper
Change $1.50 to **$1.00**

Printing It
Change "Book People" to **Wingbow Press**

Bookbinding, Its Background and Technique
Out of Print

The History of English Craft Bookbin Bookbinding Technique
Change "Hafner Publishing Company" to to **Hafner Press**
Out of Stock indefinitely

The History of Bookbinding 525-1950
Add **$12.50 postpaid**

Materials and Equipment
Delete Nevins Bookcrafts, etc.

Additional Suppliers
Add **Basic Crafts Co.**
312 East 23rd St.
New York, NY 10010
Good basic tools and materials. Service O.K., and they answer questions.

Add **American Printing Equipment**
42-25 Ninth St.
Long Island City, NY 11101
About the same equipment, price about the same. Service a little quicker.

p. 679
Editing By Design
Delete "or Whole Earth"

Bookbinding by Hand
Out of Print

p. 680
Observations from the Treadmill
Delete "And so far no paperback."
Change $12.95 to **$4.95**

A Manual of Style
Change $10.00 to **$12.50**

p. 681
[MORE]
Change "Dave Potuin" to **Dave Potvin**

Other Voices: Black, Chicano, and American Indian Press
Change $3.50 to **$5.57**
Change "38 West 5th St." to **2285 Arbor Blvd.**
Change Zip Code 45402 to **45439**

p. 682
Books-By-Phone
Add **They now handle only books that retail at $4.95+ each.**

p. 683
Revolting librarians
Delete "or Whole Earth"

p. 684
Style
Change "302 Temple St." to **92A Yale Station**
Change Zip Code 06511 to **06520**

The Writer's Craft
Change "Random House, Inc." to **Alfred A. Knopf, Inc.**

p. 685
Zen in English Literature and Oriental Classics
Out of Print

p. 687
Human Universe
Out of Print

p. 688
Mandala
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

Mural Manual
Change $2.00 to **$5.95**
Change Public Art Workshop, etc.
to **Beacon Press**
25 Beacon St.
Boston, MA 02108

Art Objects: Their Care and Preservation
Change $15.00 to **$17.50**

p. 693
Echoes
Change Zip Code 9310 to **93103**

p. 696
Henscratches and Flyspecks
Change $7.95 to **$2.25**
Change G.P. Putnam's Sons, etc.
to **Berkley Pub. Corp.**
390 Murray Hill Pkwy.
East Rutherford, NJ 07073

Lou Harrison's Music Primer
Add **or Whole Earth**

p. 697
How to Make a Banjo and a Banjo-Guitar
Change $3.00 to **$5.00**

The Modern Harpsichord
Delete "or Whole Earth"

p. 698
The Amateur Wind Instrument Maker
Change "505 East Pleasant St." to
P.O. Box 429

p. 699
The Rolling Stone Guide to High Fidelity Sound
Add **or Whole Earth**

p. 703
World Radio and TV Handbook 1974
Change "Griller Associates, Inc." to
Gilfer Associates, Inc.

p. 705
Computers and Computation
Add **or Whole Earth**

Principles of Systems
Change $8.00 to **$10.00**

p. 706
Constructive Geometry
Add **or Whole Earth**

Altair Design
Add **or Whole Earth**

p. 708
Stone Age Economics
Change $12.50 to **$4.95**

Post Scarcity Anarchism
Change $2.95 to **$3.95**

Input-Output Economics
Change $9.50 to **$11.50**

p. 711
P.E.T.
Change $7.95 to **$9.95**

p. 712
The Day They Parachuted Cats on Borneo
Change $4.75 to **$5.50**

The Juniper Tree and Other Tales from Grimm
Change $12.95 to **$15.00**

p. 716
What To Do When "There's Nothing To Do"
Change $4.50 to **$.95**
Delete "Delacorte Press"

p. 717
Ceramics by Slab
Change $3.00 to **$3.75**

p. 718
Liberating Young Children from Sex Roles
Change "30 cents" to **50 cents**

Patterns for Designing Children's Centers
Change "477 Madison Ave." to
850 Third Ave.

p. 720
Somewhere Else
Change $3.00 to **$3.95**

p. 721
Edcentric
Change "Center for Educational Change" to **Center for Educational Reform**

Values Clarification
Change $3.95 to **$4.95**
Change 719 Broadway
New York, NY 10003
to **15 West 4th St.**
New York, NY 10012

p. 723
The Seed Catalog
Change **$6.95** to **$6.95**

p. 724
My Computer Likes Me . . . when I speak in BASIC
Change $1.19 to **$1.99**

People's Computer Company
Change "1919 Menalto Ave." to
P.O. Box 310

p. 725
The Media Works
Change $4.95 to **$7.90**
Change "38 W. Fifth St." to
2285 Arbor Blvd.
Change Zip Code 45402 to **45439**

Making It Move
Change $3.00 to **$4.61**
Change "38 W. Fifth St." to
2285 Arbor Blvd.
Change Zip Code 45402 to **45439**

p. 726
Time Tripping
Change "Diana L. Parson" to
Diana L. Paxon

p. 727
Only a Little Planet
Out of Print

Marine Aquarium Keeping
Change $9.95 to **$10.95**

Oceanology: An Introduction
Change $12.95 to **$13.95**

p. 728
Gazelle-Boy
Change $5.95 to **$6.95**

Five Days of Living With the Land
Change $4.25 to **$4.95**

p. 729
Pioneer Life in Western Pennsylvania
Change $2.25 to **$2.95**

Golden Handbooks
Change $1.95 to **$2.95**
Change "1220 Mound Ave." to
P.O. Box 700, Dept. M
Change Zip Code 53404 to **53401**

Dandelion, Pokeweed, and Goosefoot
Change $4.50 to **$4.95**

Learning from the Indians
Change $2.95 to **$4.20**

p. 730
City Leaves, City Trees
Change $6.50 to **$6.95**

p. 733
The Portable Dragon
Change $1.95 to **$5.95**

p. 735
Zen and the Art of Motorcycle Maintenance
Change "Irving Fish" to **Irving Fisk**

Mechanization Takes Command
Change $3.95 to **$4.25**

p. 736
Real Magic
Out of Print

The Medium, the Mystic, and the Physicist
Add **or Whole Earth**

Parapsychology: Sources of Information
Add **or Whole Earth**

The Beginner's Handbook of Dowsing
Add **or Whole Earth**

p. 738
Journal of Psychedelic Drugs
Change "Haight-Ashbury Free Medical Clinic" to **Stash Press**
Add **Nancy Gottleib, ed.**
Change "James R. Gamage" to
Donald R. Wesson, assoc. ed.

p. 742
The Psychology of Consciousness
Change $3.50 to **$4.00**

p. 743
Sensory Deprivation Kit
Change "(60 lb.)" to **(80 lb.)**

p. 744
The Jewish Catalog
Change $5.00 to **$5.95**

Journey to Ixtlan
Change $2.95 to **$1.50**

p. 748
Cutting Through Spiritual Materialism
Change $3.95 to **$4.25**
Change Shambhala Pub., Inc., etc.
to **Shambhala Pub., Inc.**
2045 Francisco St.
Berkeley, CA 94709

p. 751
Epilog Printing
Add **2nd Printing October 1974**
105,000 softcover $.81 each

p. 752
History 3rd column
Change " Buddhism (Pg. 745)" to
–Buddhism (Pg. 748)

p. 762
Index
Change "Lucis Trust Library 413" to
Lucis Trust Library 417

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

(Act of August 12, 1970: Section 3685, Title 39, United States Code)

1. Title of Publication: The CoEvolution Quarterly.
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   Managing Editor: Andrew Fluegelman, Box 428, Sausalito, CA 94965.
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8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: none.
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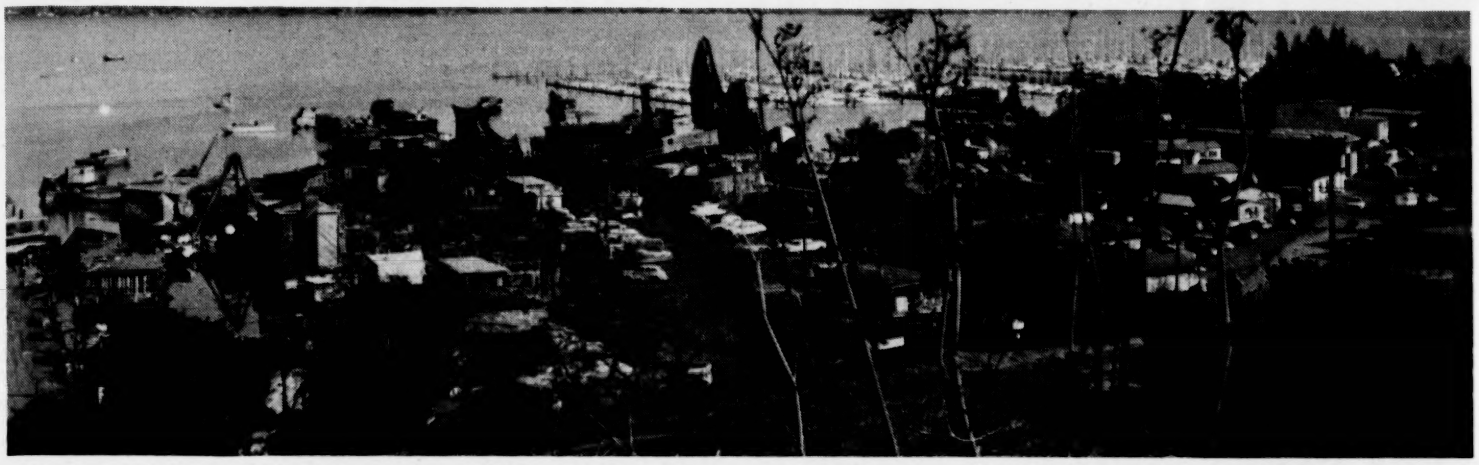
I certify that the statements made by me above are correct and complete.

(Signature) Andrew Fluegelman, Managing Editor



Gate 5, Sausalito

The CoEVOLUTION Quarterly

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CoEvolution Quarterly costs

Office (rent, utilities, phone, postage, supplies)		$4,400
Staff salaries		6,500
Research		600
Contributors (reviewers, articles, graphics)		4,500
Production supplies		200
Printing: body	$3,530	
covers	1,185	
centerfold	620	
binding	900	
cover proof	225	
		6,460
TOTAL COST		$20,660
1st Printing, December, 1974		15,000 copies

Unit cost: $1.37

Our production costs have risen substantially since the Summer issue, reflecting primarily our move to a more permanent, efficient, drier, warmer and more expensive "international headquarters". Also, in order to stay in contact with the now more than 3000 present entries in the Catalog and Epilog (and the scores of potential new entries we hear from each day), we've found that our phone and postage expenses have mounted astronomically.

As of the middle of December, we have about 2000 present subscribers, with the rate of new subscriptions currently at about 50 per week. We have orders from distributors (for newsstand and bookstore sales) for about 8000 copies of the Winter issue, approximately 6500 of which we can expect to be sold and eventually receive payment ($1 per copy) for. The uncommitted copies are reserves for fulfilling new subscriptions, possible re-orders and extras for review copies and back issue orders. (It's prohibitively expensive to have to re-print less than 5000 copies.)

Taking into account the costs of mailing to subscribers and shipping to distributors, we just about break even on each copy mailed to subscribers and will probably lose about $.88 on each copy of the CQ that is eventually purchased in bookstores at the $2 cover price. Hopefully, that cost is justified as a way of building up our list of subscribers.

—Andrew Fluegelman

Gossip

Farewell to the crab shack that was our office for a year. Developers got permission to demolish the pier, and we ran for solid ground. You've heard of industrial parks? We're in the longhair industrial dump at Gate 5 now, in a building called "HARVEY'S LUNCHES" and as unwelcoming to visitors as ever. Mail we love.

In the course of moving, our old office was broken into and word got round the pier community that our books—— everything that was in the Epilog—— were up for grabs. In three days they were gone. One grabber, contrite, told us where he had sold a truckload. So we bought back half our books.

J.D. Smith, who used to manage the Whole Earth Truck Store and edited one of the early Whole Earth Catalogs (Fall '70), rolled in raunchy from two winters in Idaho back country. After a week of writing for us and fluttering the hearts of Bay Area women, the handsome cowboy headed back to his mountains. A week after that, he was back here again to stay. "Any home truth we can draw from this?" I asked. "How you gonna keep 'em down on the farm when it's a shitty life?" he offered. Now J.D. is building a library for the office of pegged pine.

Diana Barich was out for a couple of weeks with a tubal pregnancy. Complete recovery.

Andrew Fluegelman, in his seventh week of total fast (just water), has become rather transparent and beautiful. Floats through like a cloud. Diana Fairbanks noticed that his eyebrows seemed permanently raised. No deleterious effect on his work or wits so far. He avoids doctors and mothers, who give him a hard time.

Pam Cokeley was voted Most Successful Recent Graduate by her alma mater, Beloit College.

The old directorship of POINT has all been forcibly retired by our three-year-kickout rule. Louis Durham, formerly of Glide Foundation, is the new president. He presides over a $60,000 debt (partial print bills for the Epilog).

The Epilog has been a news item. After two quiet months on sale the New York Times *discovered it in a bookstore and wrote it up. Immediately the San Francisco* Chronicle, *the wire services,* Time, *etc. reported the "news". Their reality is each other. Meanwhile no one yet has reviewed the Epilog —— whether it's an okay reference book or not—— anywhere. Something around 200,000 have sold. The mail is getting good.*

—SB

Back issues

Spring '74, Summer '74, Fall '74 (Black Panther issue), and this one—— Winter '74—— back issues of The CQ are available postpaid from us. 1 copy: $2. 3 copies: $5. 4 copies: $6. More: $1 each. From Box 428, Sausalito, CA 94965.

A Plea to Subscribers

Since our readers tend to be nomadic, we've been receiving a large number of notices from the Post Office of CQ's that were not delivered because the subscriber moved (and didn't guarantee postage for 2nd class mail). In an effort to stay in touch with all our subscribers, we've been tracking down their new addresses, changing them on our records, and sending a copy of the missed issue to the new address. To do that, it costs us: $.10 postage due for notice of the undelivered mail, $.20 postage to mail a single copy of the CQ, $1.30 for the cost of the copy itself, plus the costs in dollars and energy to process all that.

If you're planning on moving, you can help us greatly if you'll let us know in advance, so we can get the next issue of the CQ to you promptly and efficiently. The best way to let us know your new address is to send us an address label from an old CQ, plus your new address (with zip code).

—Andrew Fluegelman

Lone Ranger shot with silver bullet

"Pompousness is the triumph of style over content," and I'm sad to relate that—— as of Epilog—— style appears to be gaining the upper hand. Watch it!

Love, hope,
Brion Perez
Eastville, Virginia

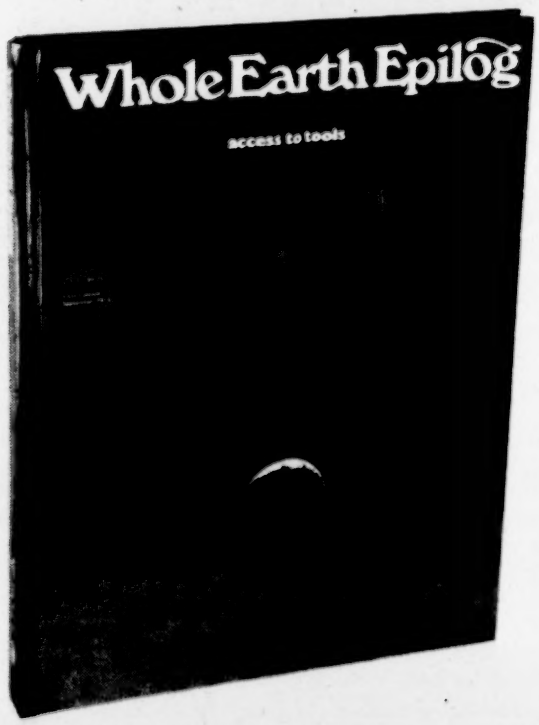
Subscribing to The CoEvolution Quarterly

Here's the absolutely most efficient way for us to send you the next four issues of The CQ at a 25% saving off the newsstand price:

1. Write your name, address and zip code on a 3" x 5" index card (or other paper).
2. Mail the card, and a check for $6, payable to "The CoEvolution Quarterly" to:

   The CQ
   558 Santa Cruz
   Menlo Park, CA 94025

(We also welcome your comments, suggestions, reviews, reports and well-founded rumors. Please write them in a separate letter, and send it to us at Box 428, Sausalito, CA 94965.)



Hardcover Epilogs and Catalogs

Just off the press are 20,000 hardcover Whole Earth Epilogs and, shortly, 4400 hardcover Last Whole Earth Catalogs. We had them made for libraries, schools, and others with many persons-per-book. The result is finer than we expected—— beautiful WHITE pages. Solid reference.

Hardcover Whole Earth Epilog
$9.25 postpaid

Hardcover Updated Last Whole Earth Catalog
$10.75 postpaid

from:
Whole Earth Truck Store
558 Santa Cruz
Menlo Park, CA 94025

What have you read that electrified you lately?

(That's not widely known about)

You wish everyone would read it, right?

We publish a housetop you're invited to shout from. We pay $10-20 per shout ($10 for a first suggestion or published review, $20 for both). Articles or papers you've seen which we might reprint qualify as well as books which we might carry. Also devices, catalogs, techniques . . .

Convince us first and we'll pass on the conviction to 15,000 readers. Maximum convince seems to ride on maximum inform (data about the wonder), sufficient personability (who's electrified), and minimum preach and froth.

The other question we routinely ask is, How Does The Apocalypse Look From Where You Are?

— The CQ
Box 428
Sausalito, CA 94965

WINTER SOLSTICE
1974